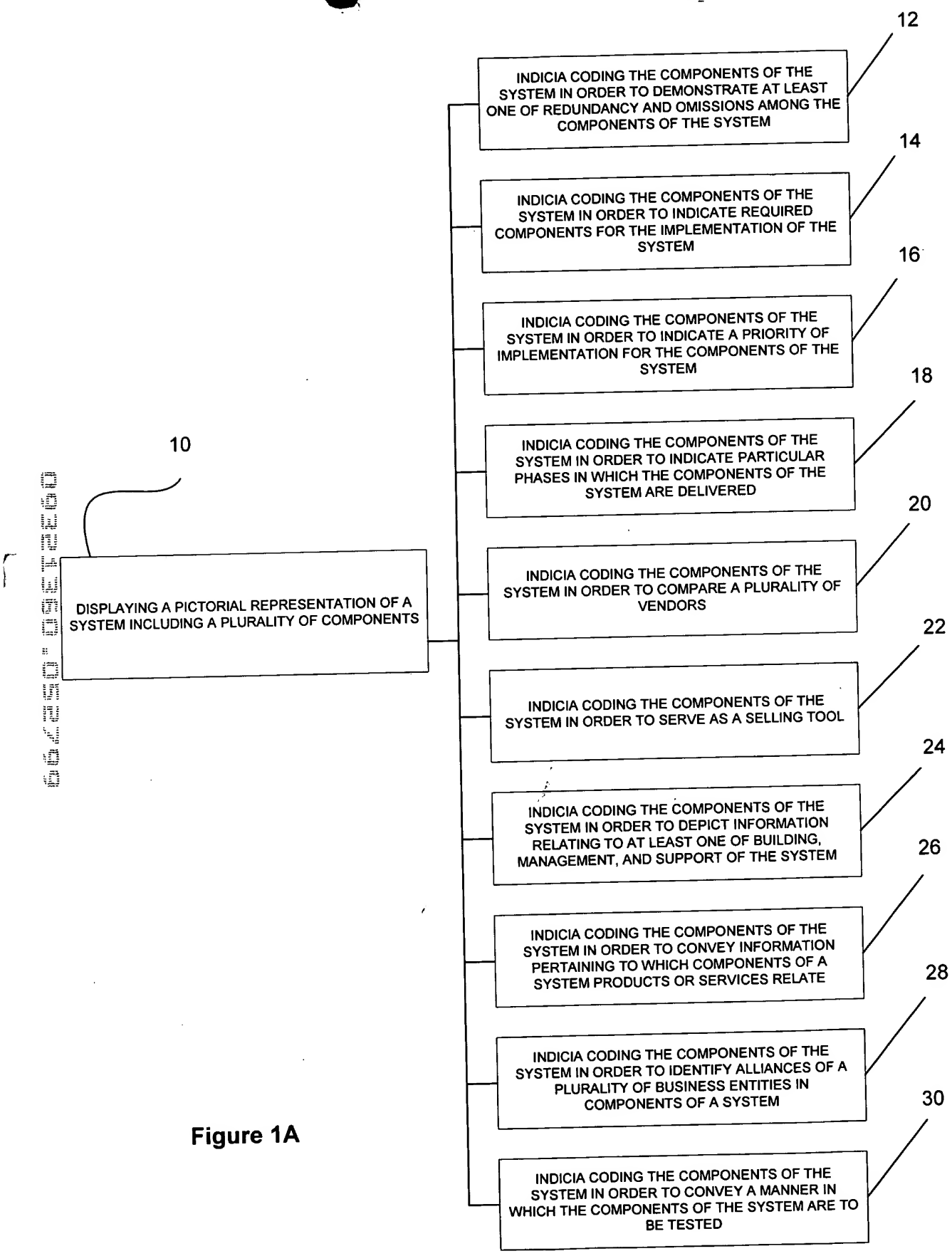
10
DISPLAYING A PICTORIAL REPRESENTATION OF A SYSTEM INCLUDING A PLURALITY OF COMPONENTS
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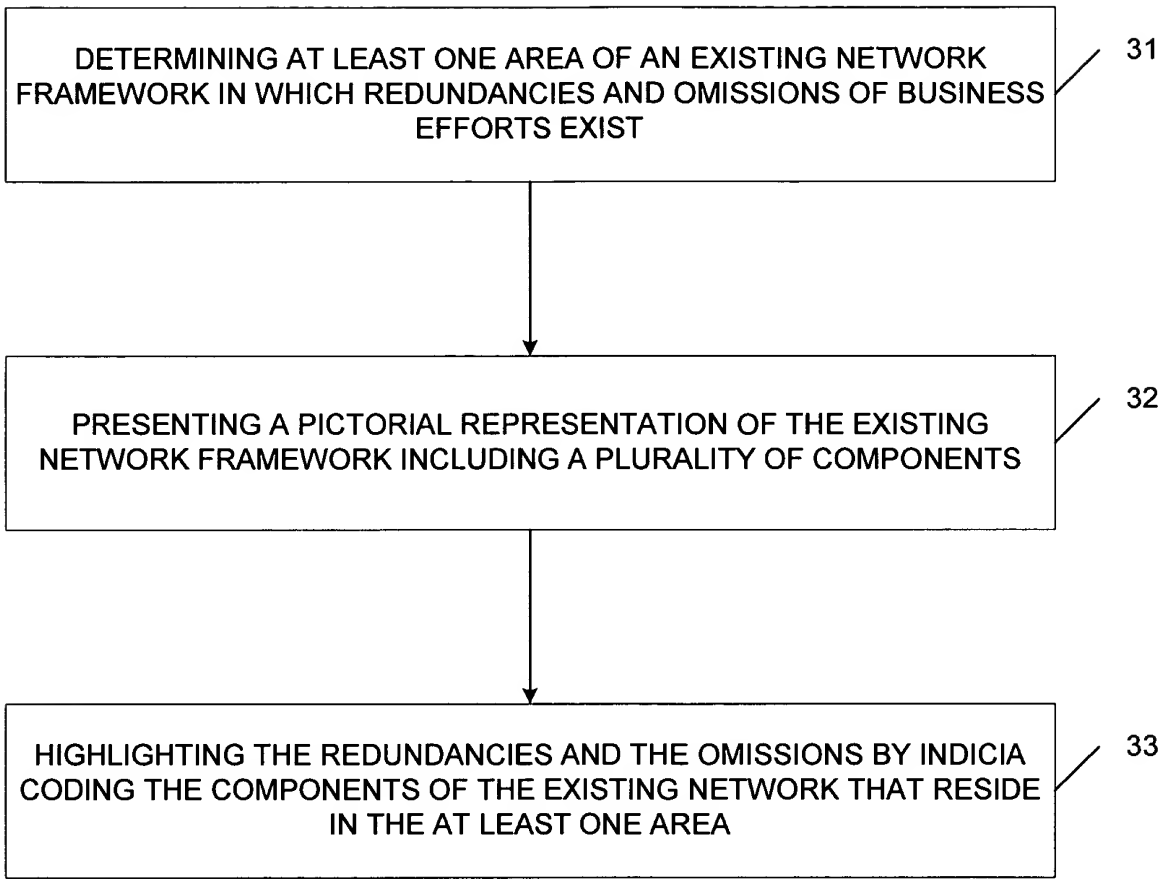
30
INDICIA CODING THE COMPONENTS OF THE SYSTEM IN ORDER TO CONVEY A MANNER IN WHICH THE COMPONENTS OF THE SYSTEM ARE TO BE TESTED

Figure 1A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31
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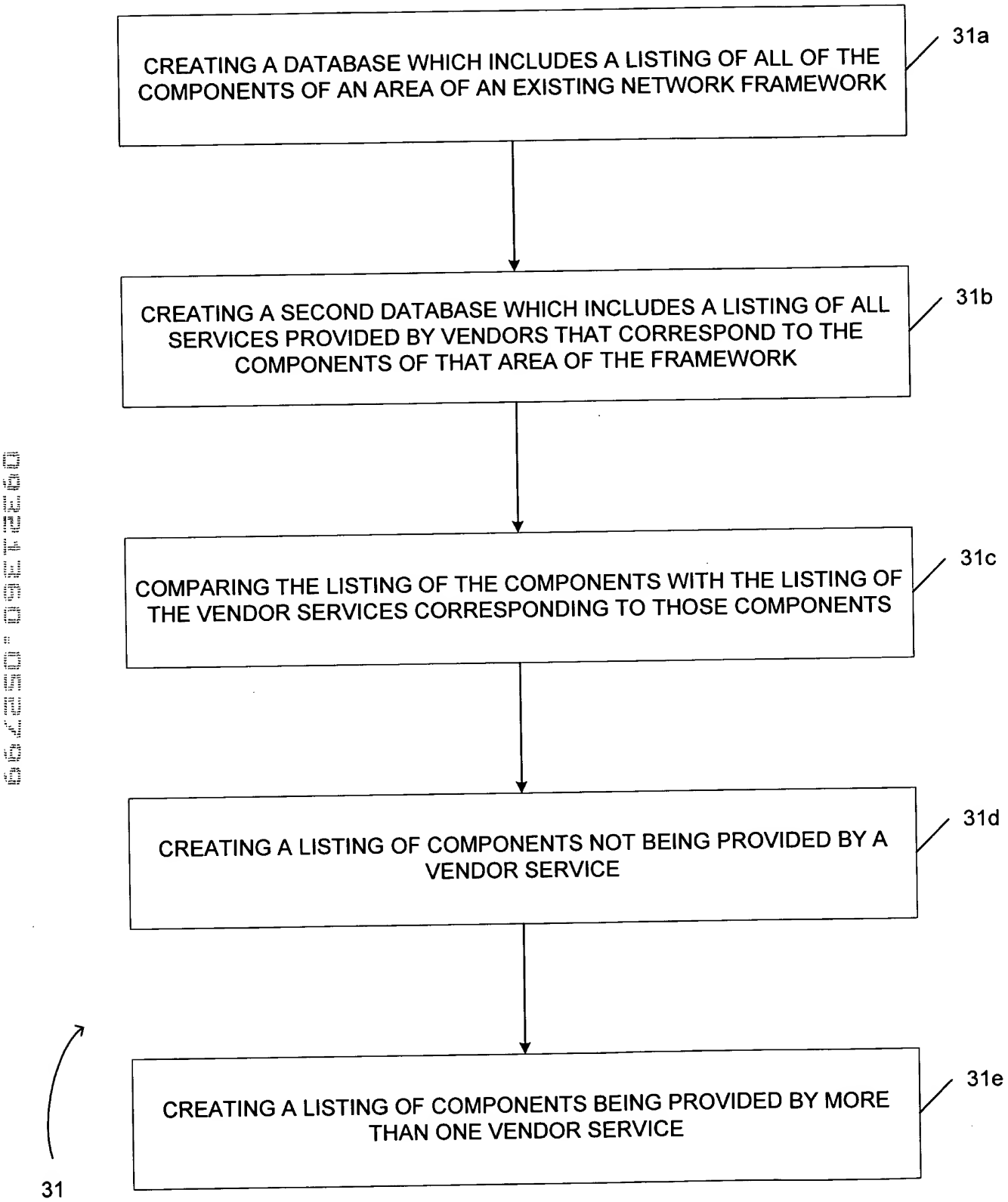
CREATING A DATABASE WHICH INCLUDES A LISTING OF ALL OF THE COMPONENTS OF AN AREA OF AN EXISTING NETWORK FRAMEWORK
31a
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31c
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31d
CREATING A LISTING OF COMPONENTS BEING PROVIDED BY MORE THAN ONE VENDOR SERVICE
31e
31

Figure 1B-1

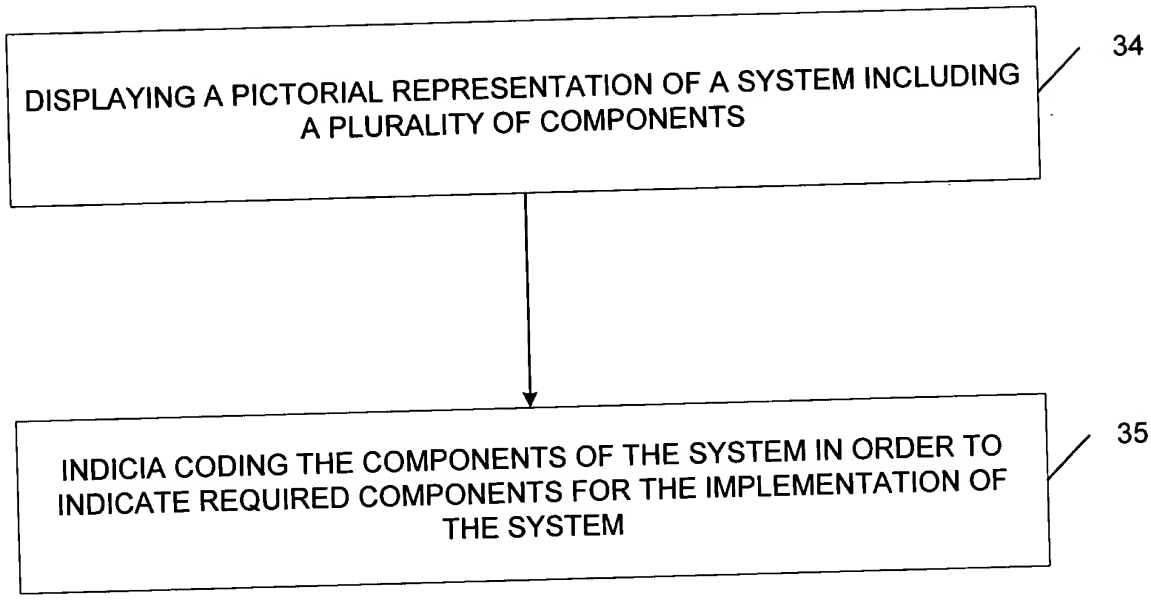
DISPLAYING A PICTORIAL REPRESENTATION OF A SYSTEM INCLUDING A PLURALITY OF COMPONENTS
34
INDICIA CODING THE COMPONENTS OF THE SYSTEM IN ORDER TO INDICATE REQUIRED COMPONENTS FOR THE IMPLEMENTATION OF THE SYSTEM
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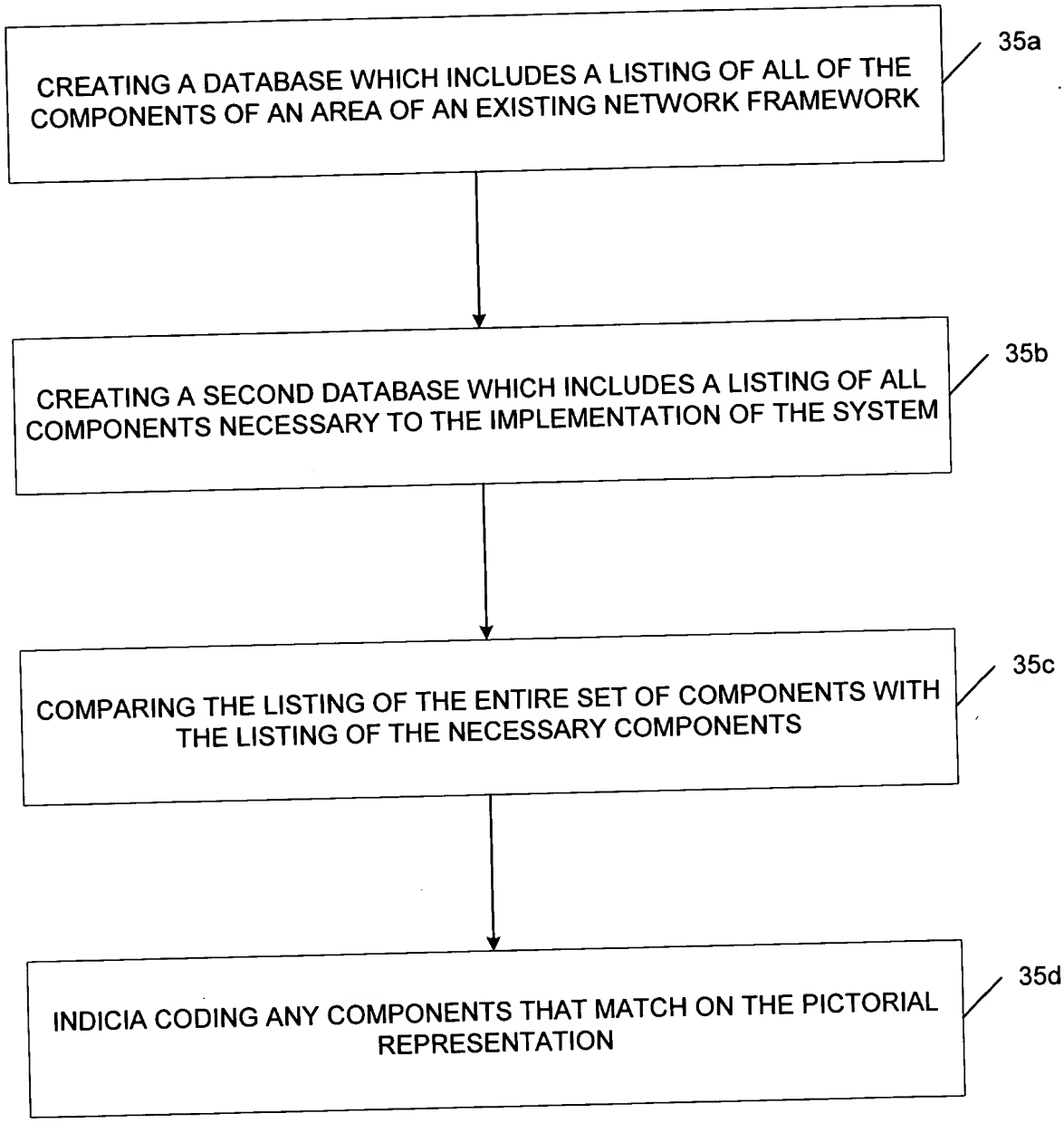
Figure 1C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35c
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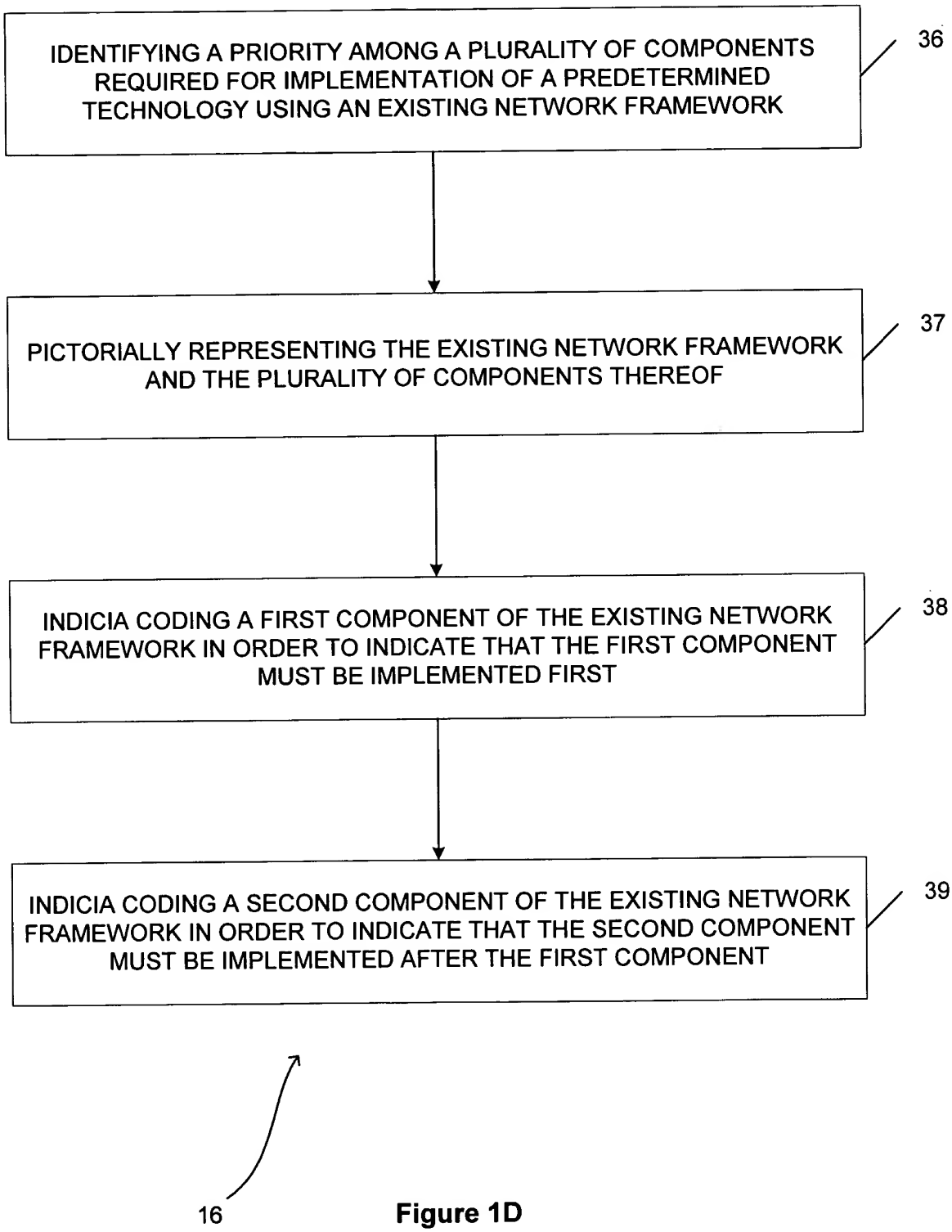
Figure 1C-1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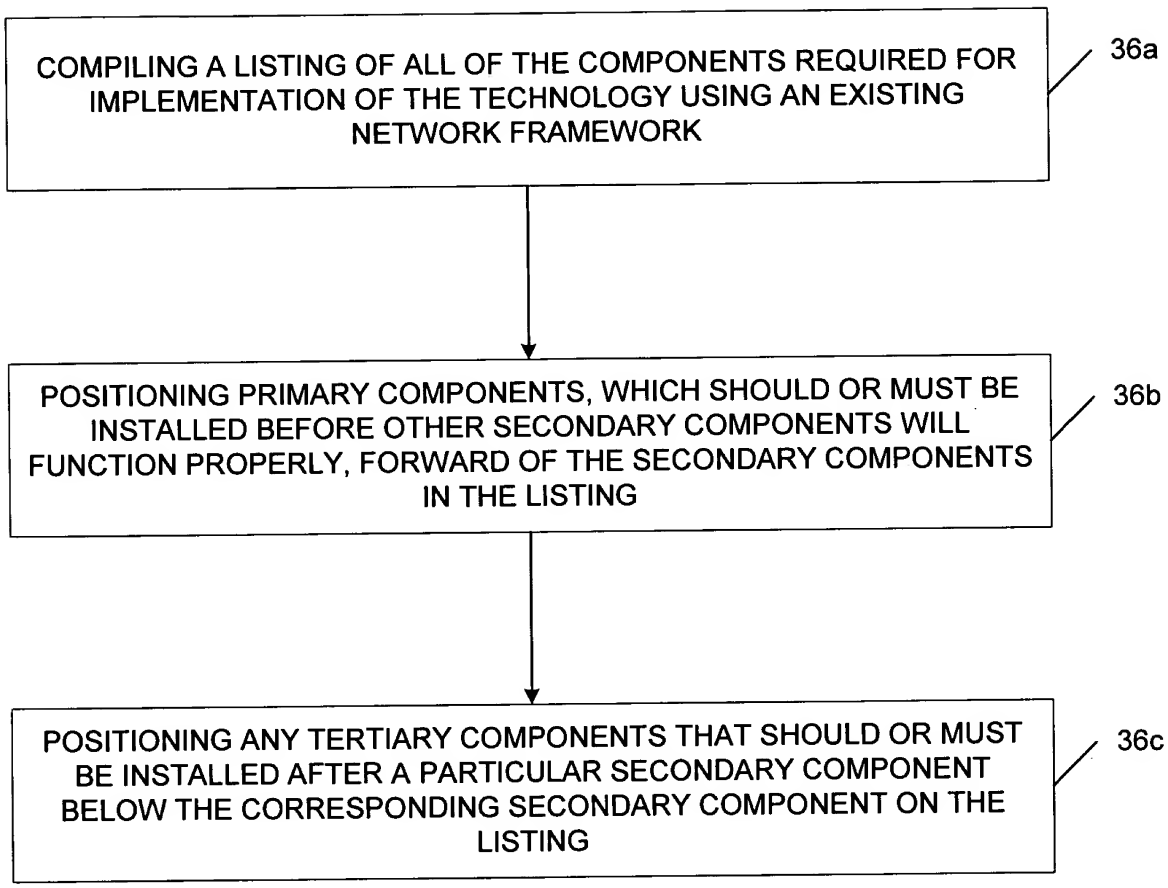
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36c
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Figure 1D-1

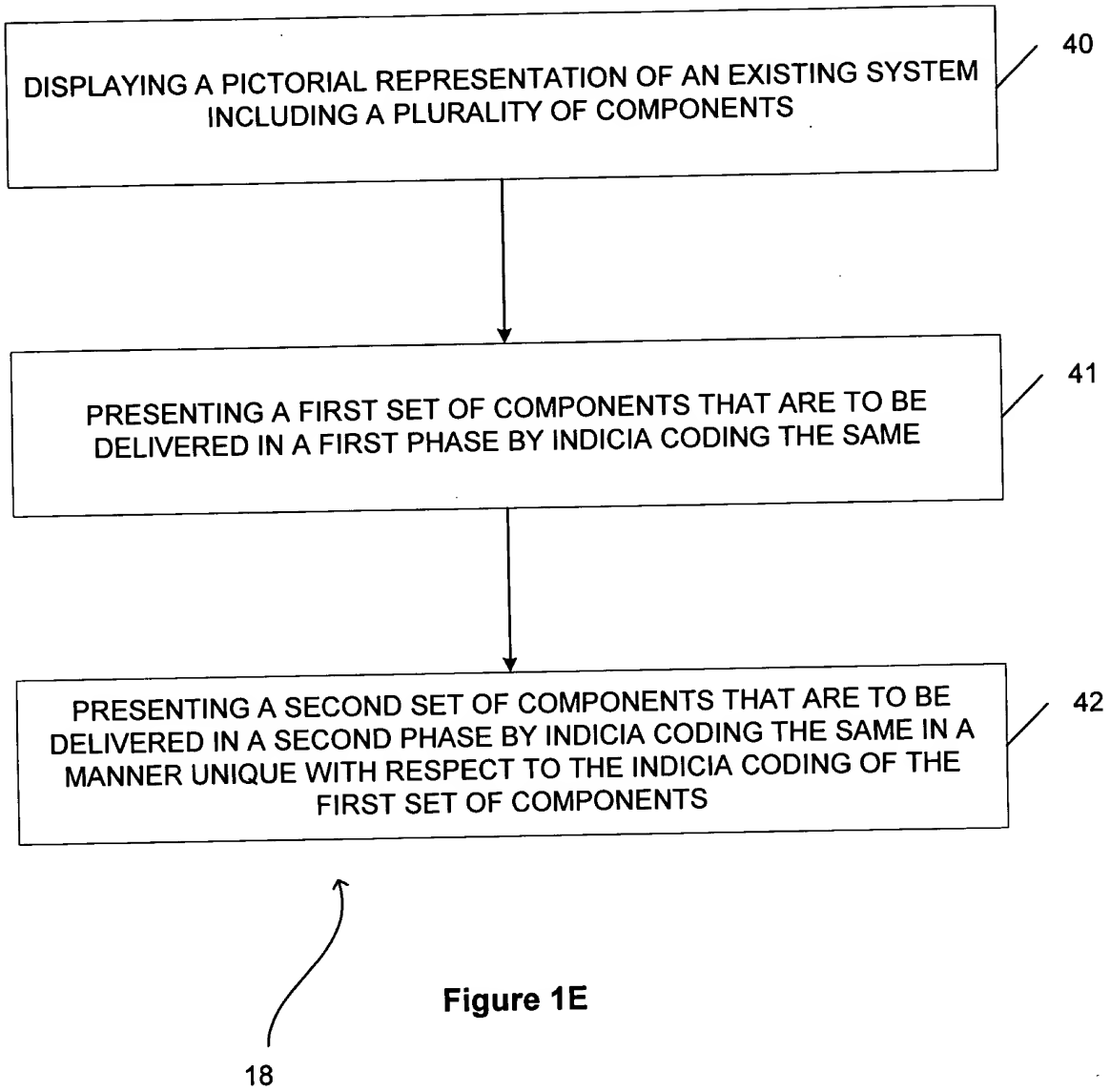
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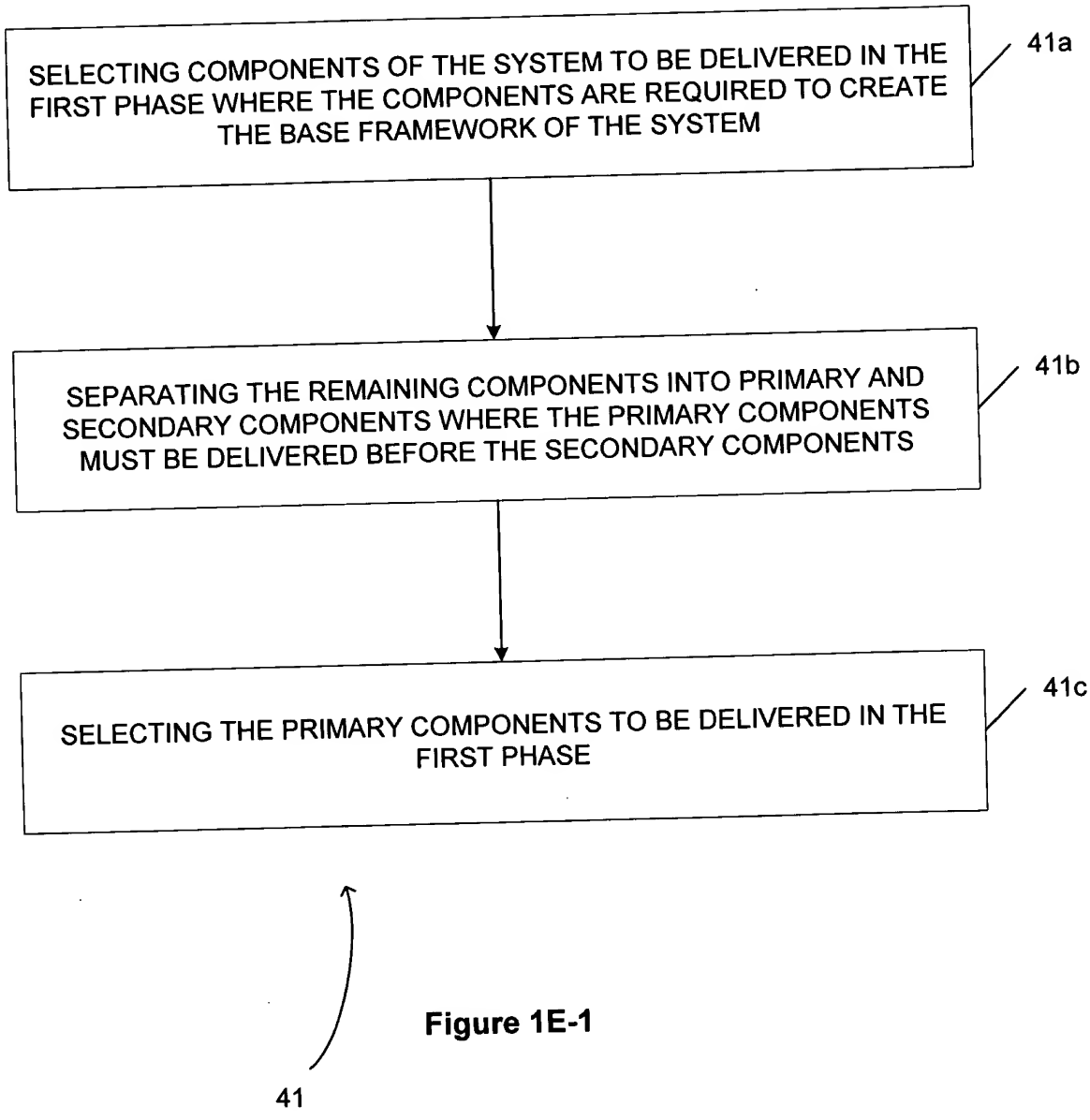
Figure 1E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41b
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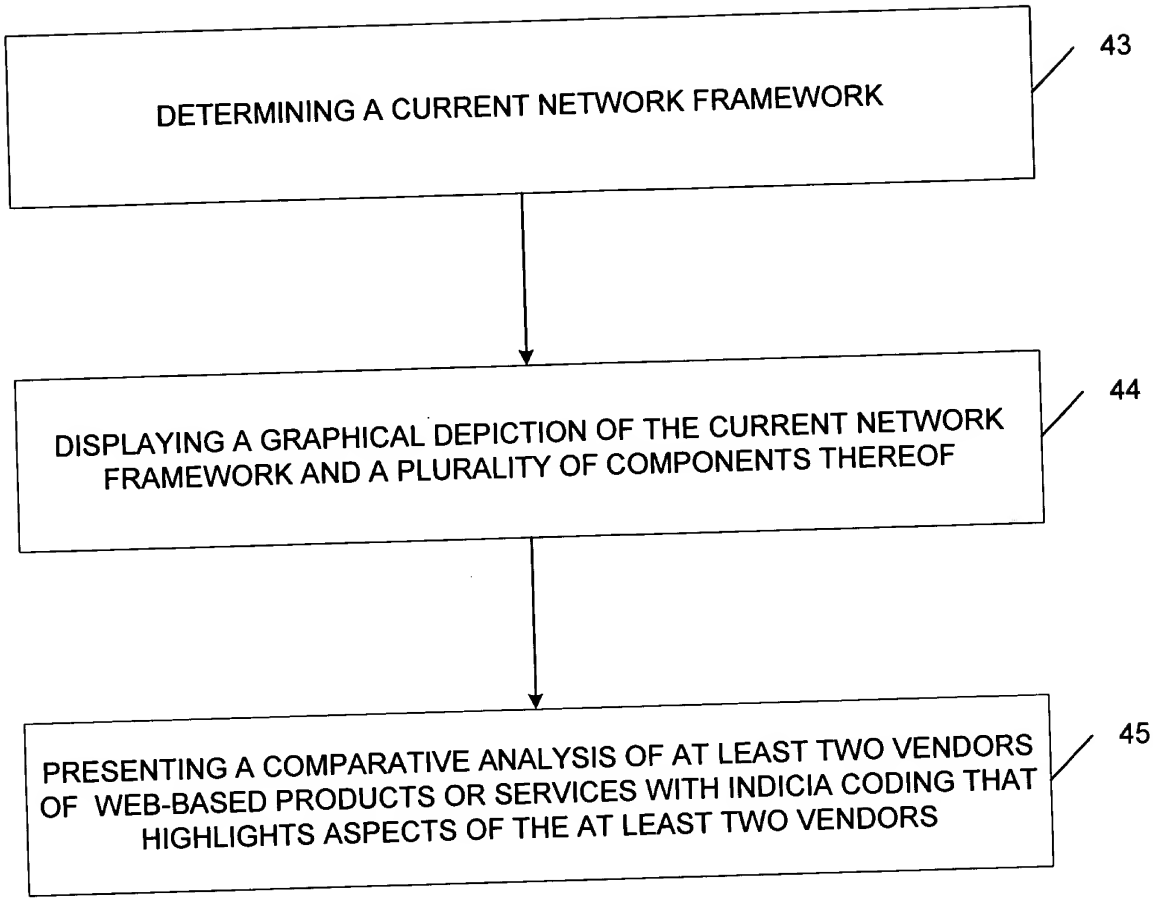
Figure 1E-1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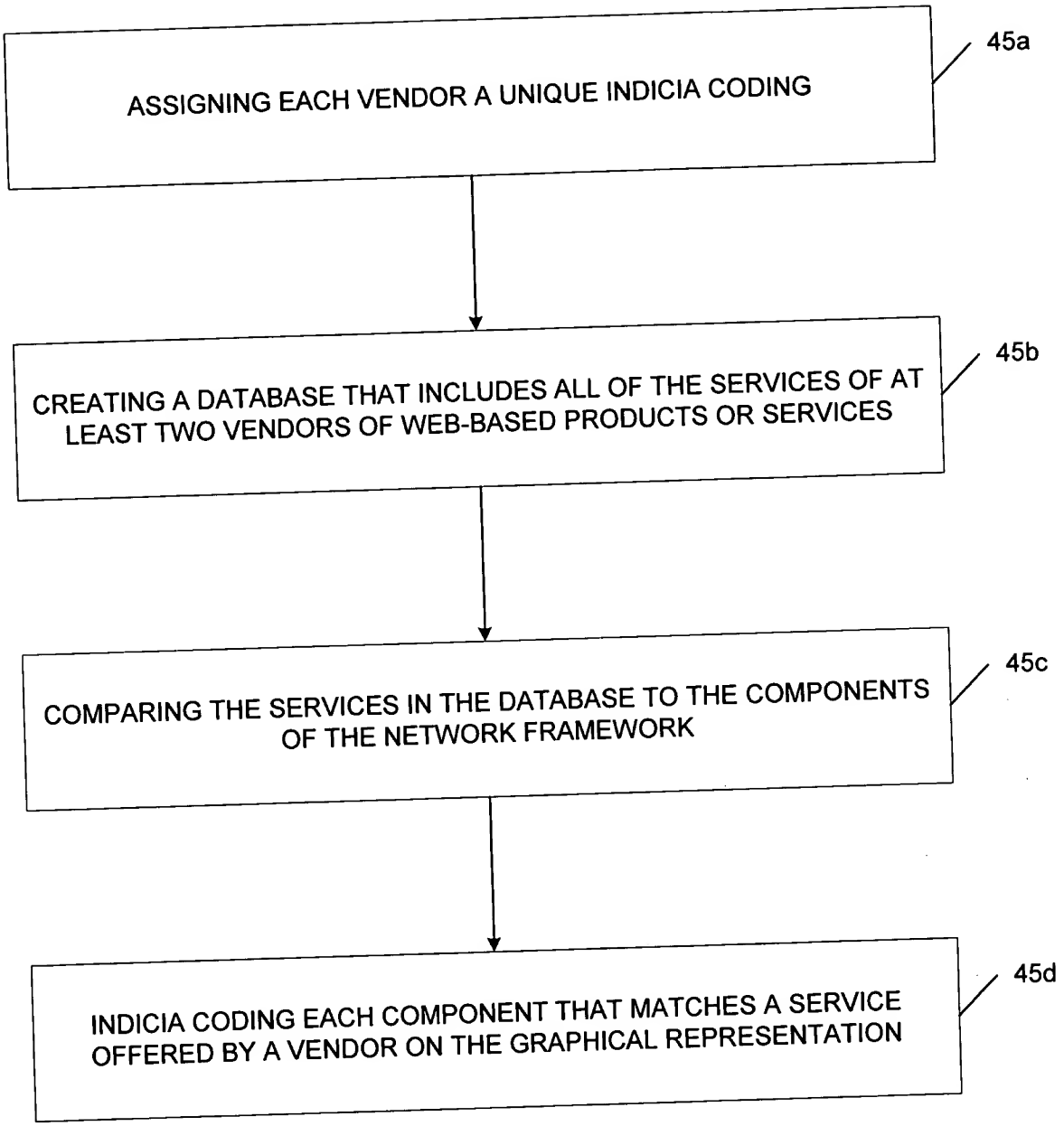
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45b
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45c
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Figure 1F-1

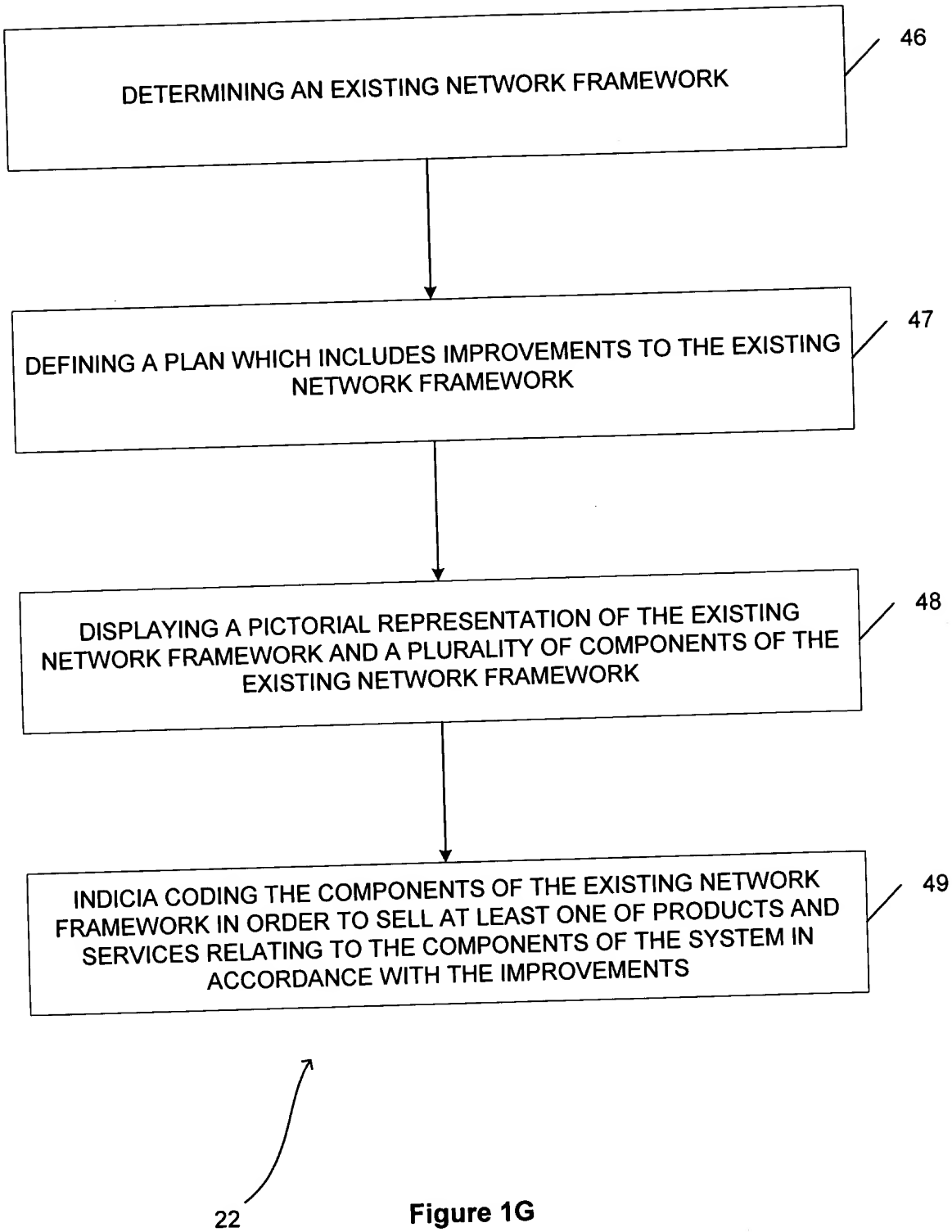
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Figure 1G

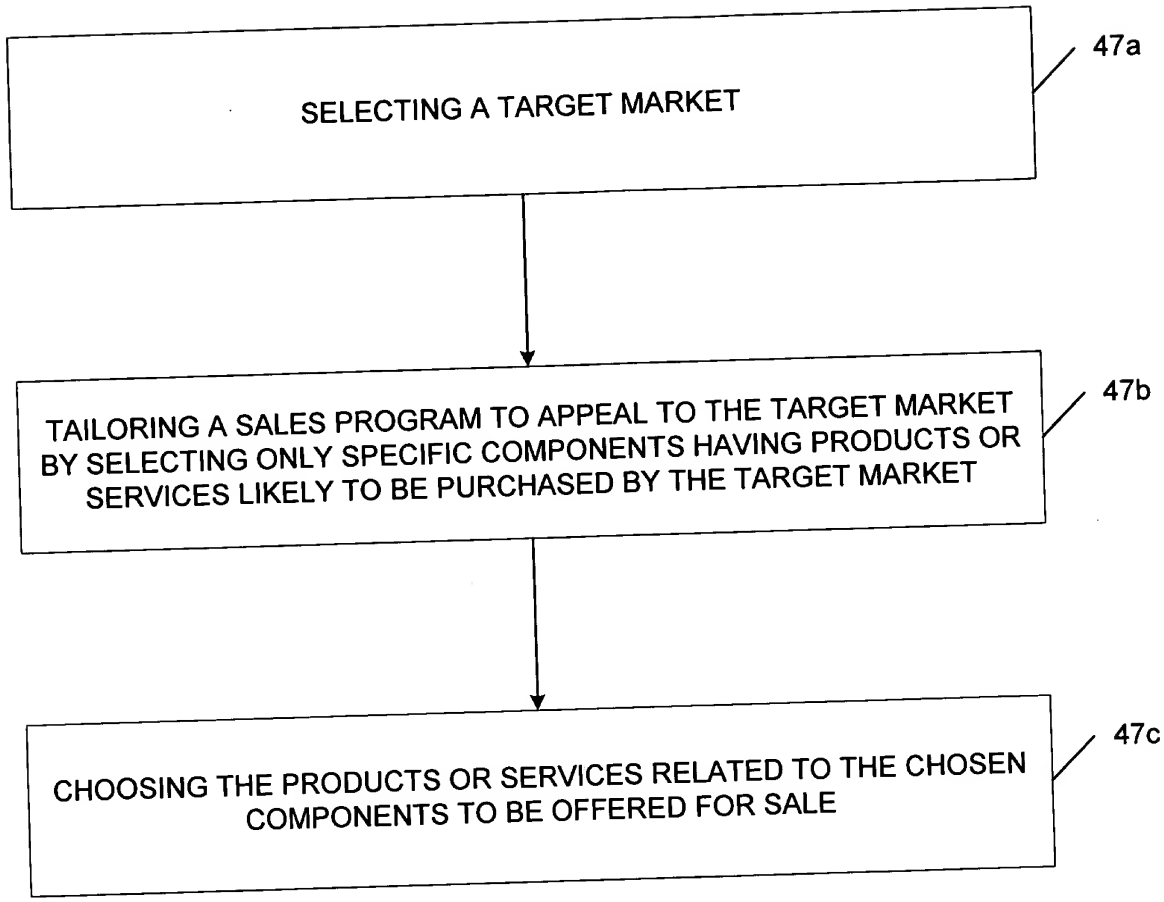
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Figure 1G-1

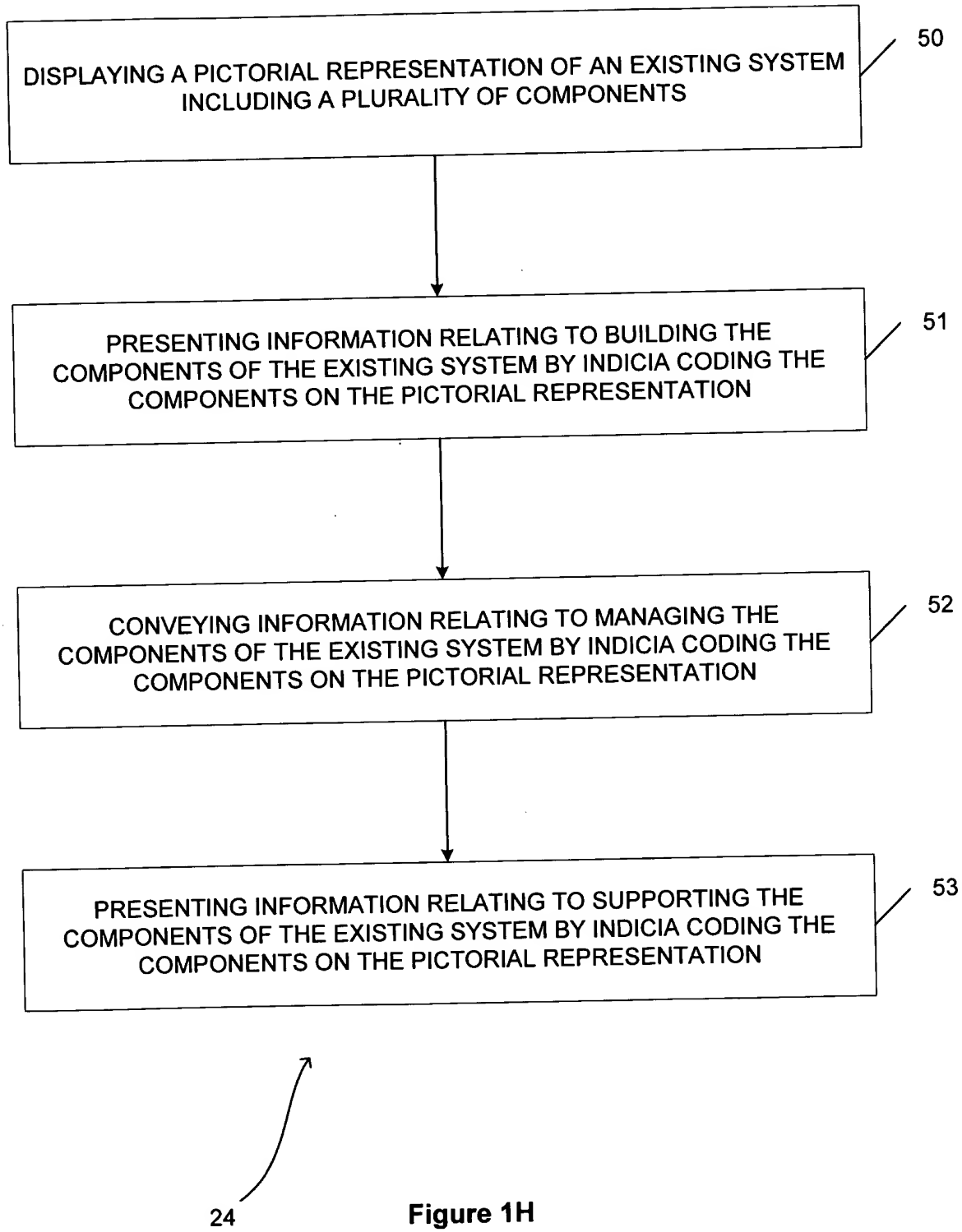
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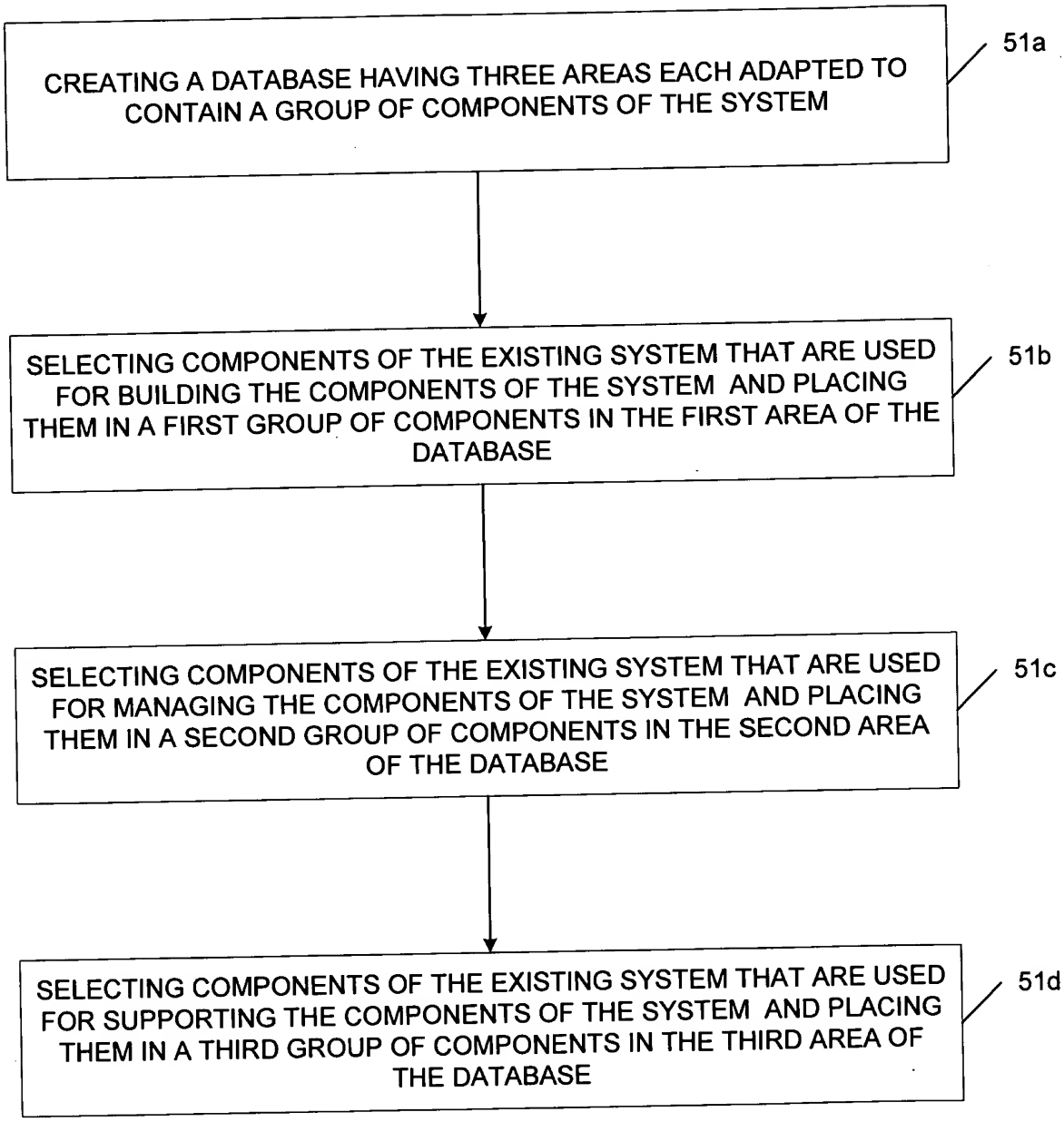
Figure 1H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51c
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Figure 1H-1

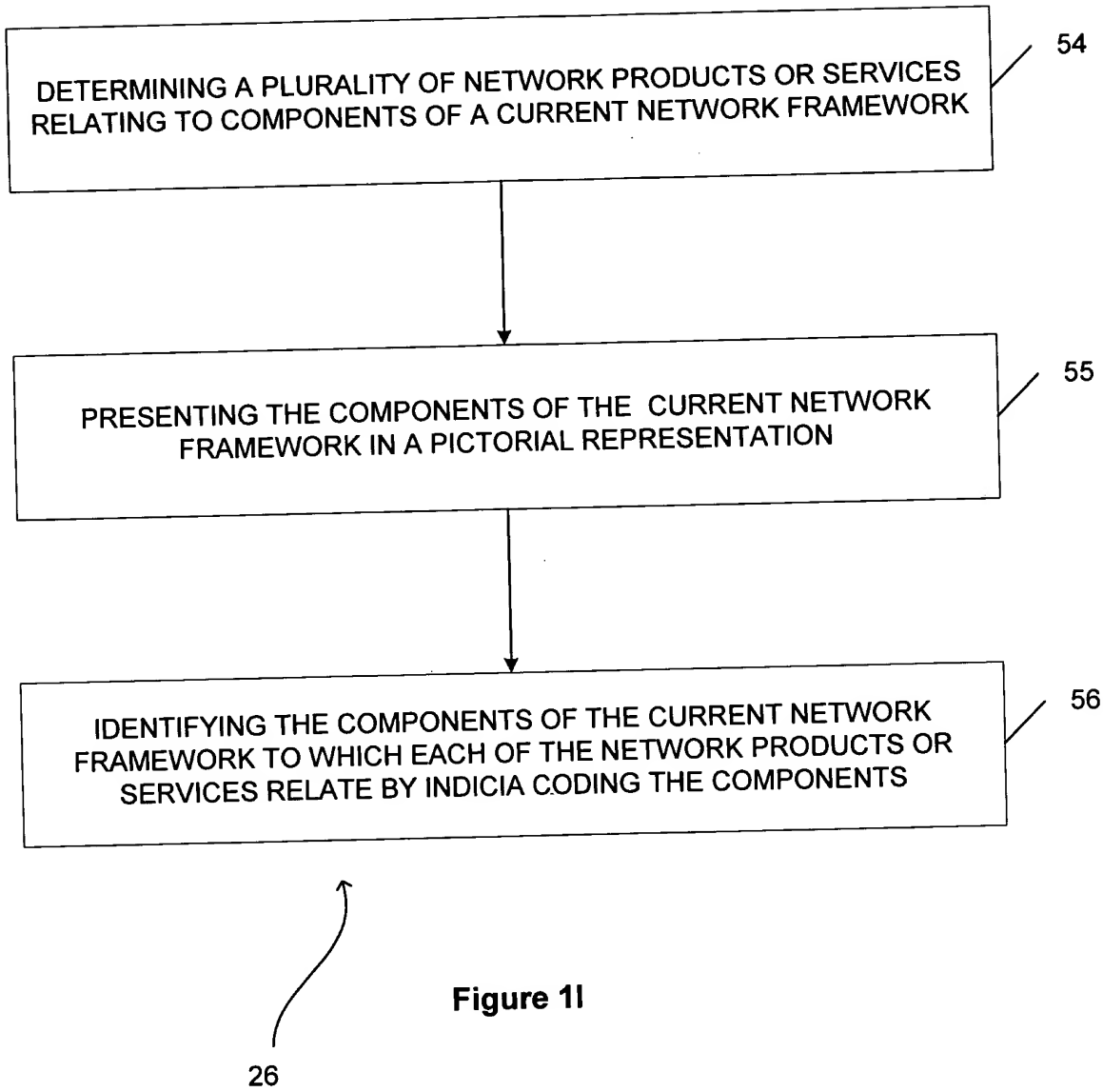
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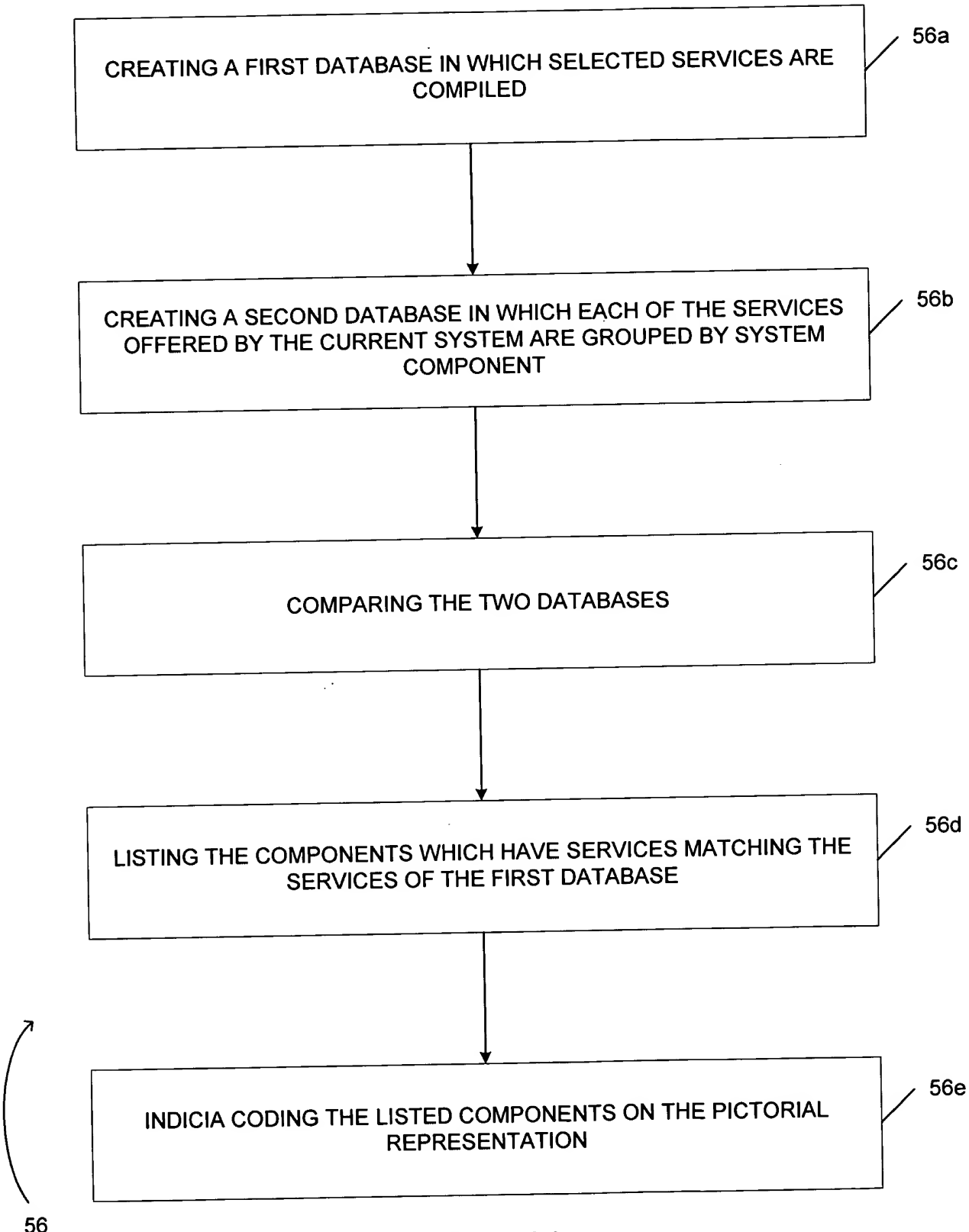
Figure 1l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56d
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Figure 1I-1

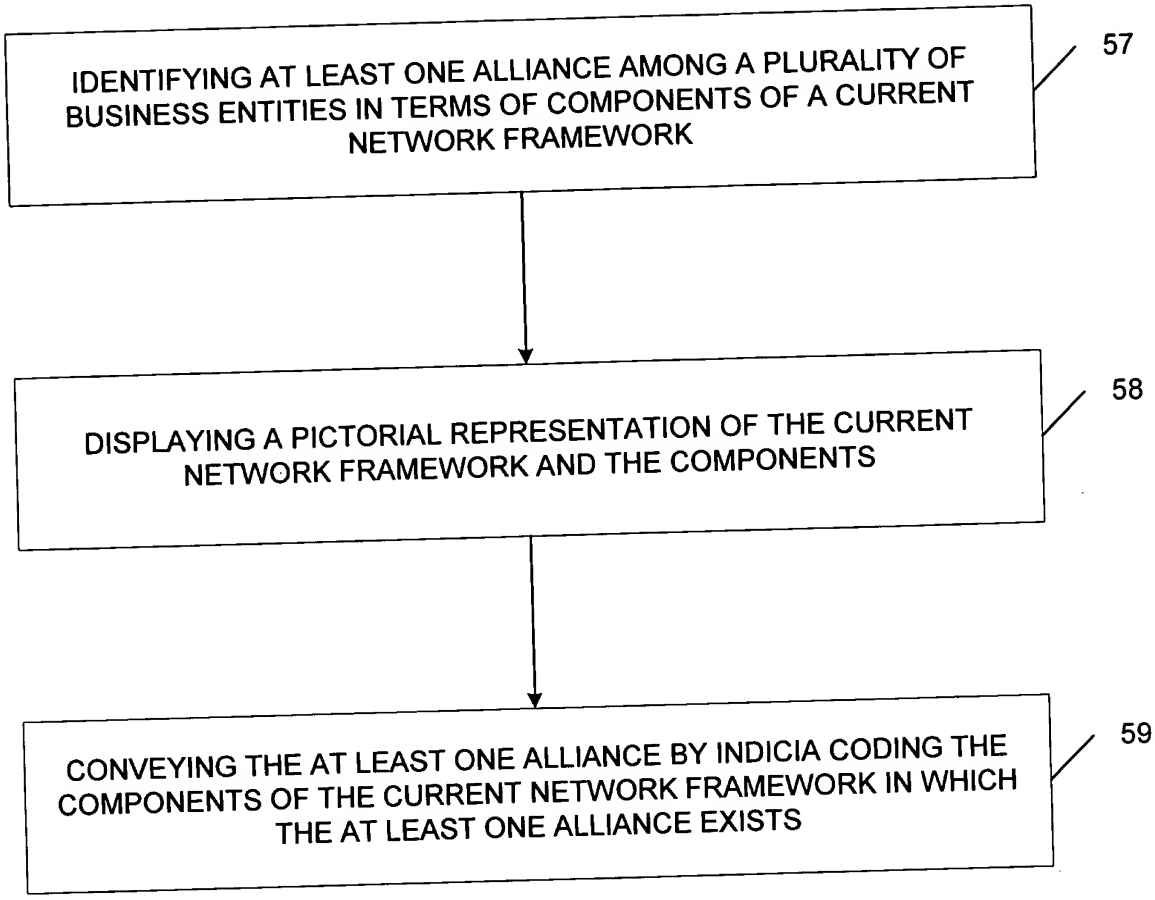
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Figure 1J

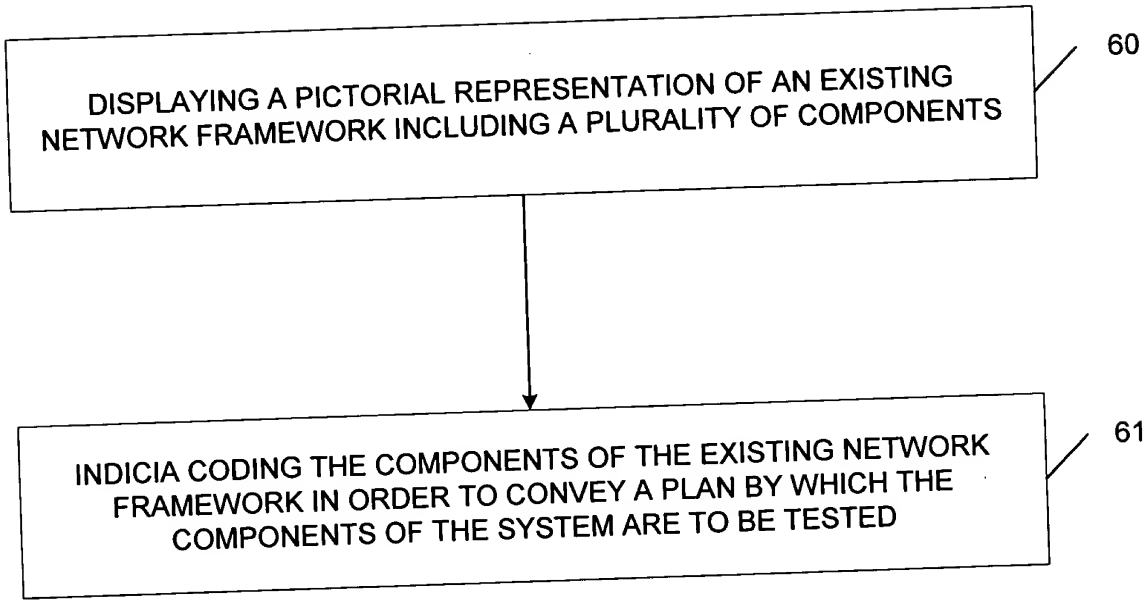

Figure 1K

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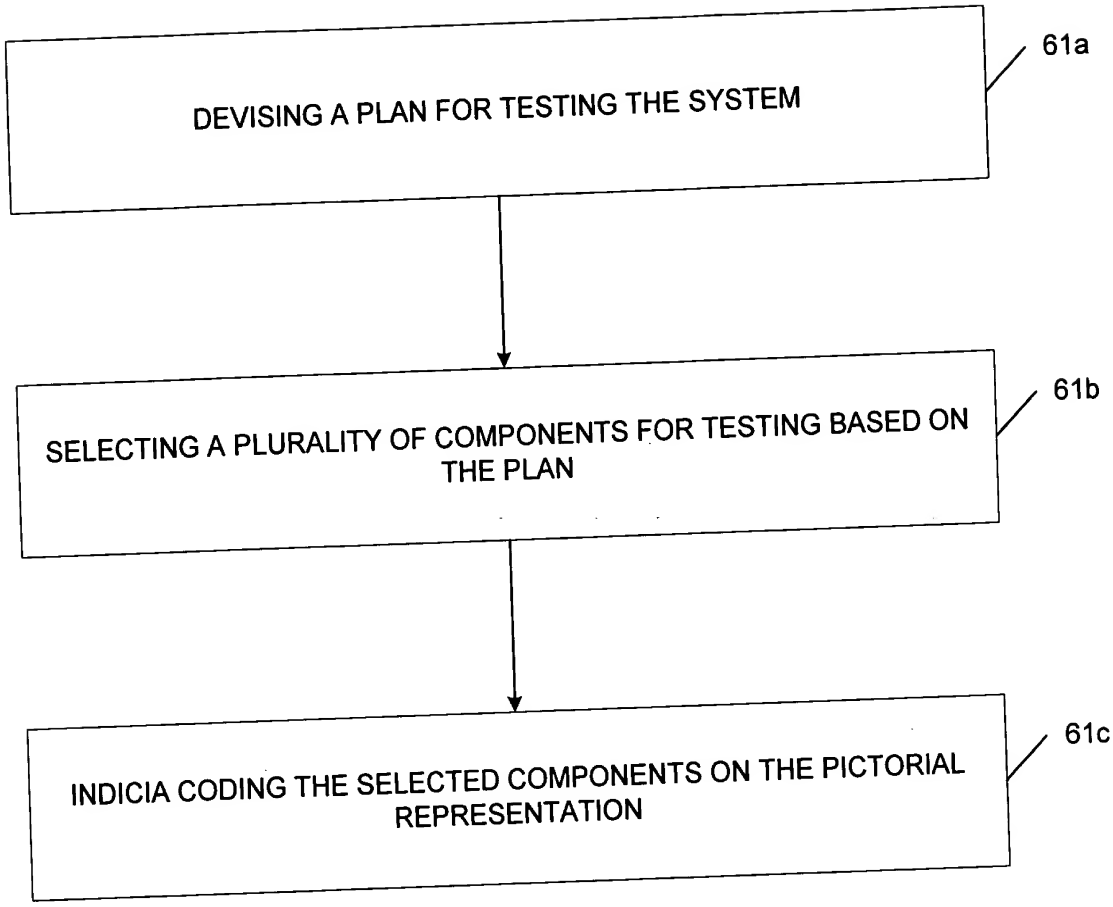
DEVISING A PLAN FOR TESTING THE SYSTEM
61a
SELECTING A PLURALITY OF COMPONENTS FOR TESTING BASED ON THE PLAN
61b
INDICIA CODING THE SELECTED COMPONENTS ON THE PICTORIAL REPRESENTATION
61c
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Figure 1K-1

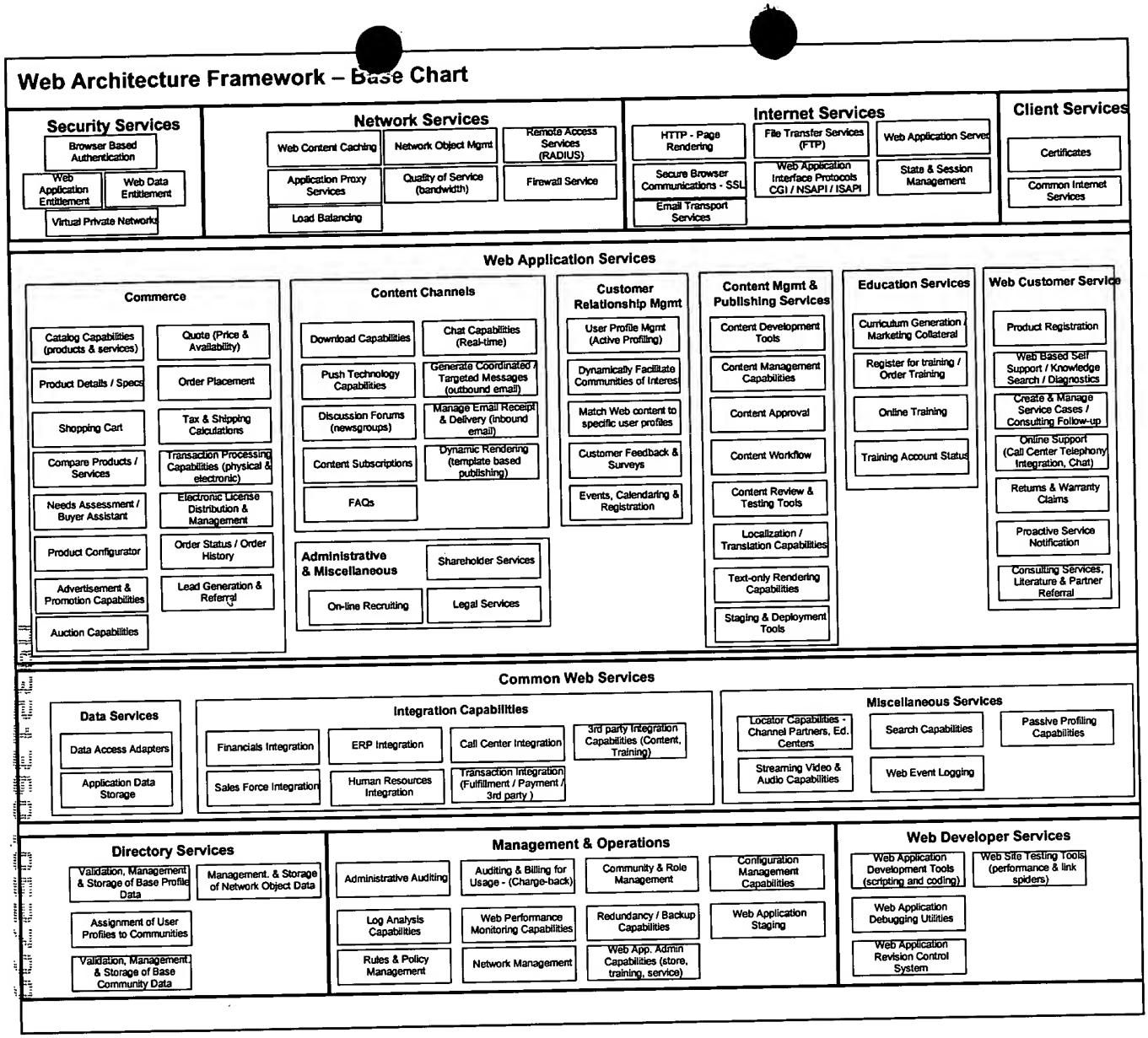
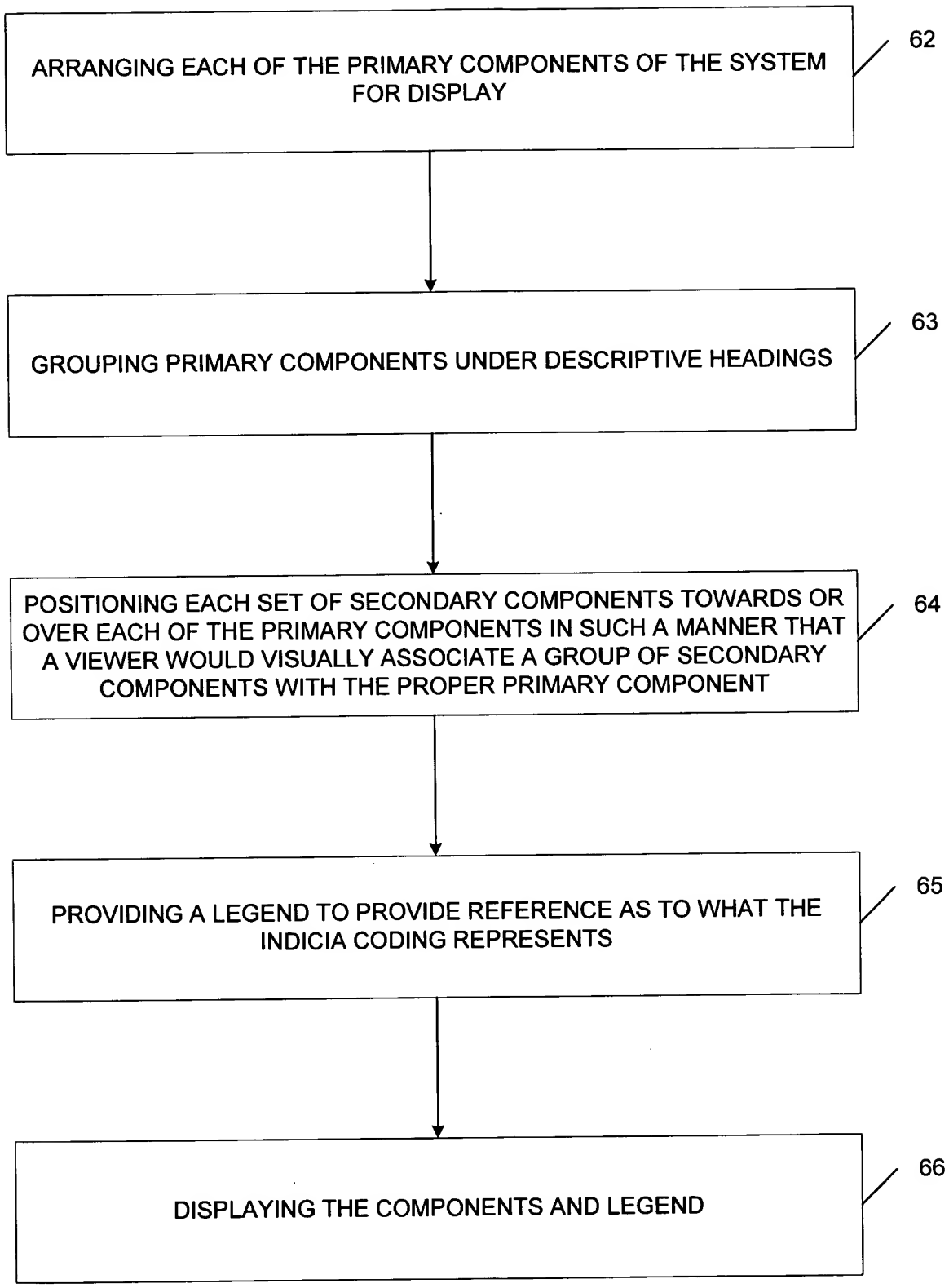

Web Architecture Framework – Base Chart
Security Services
Browser Based Authentication
Web Application Entitlement
Web Data Entitlement
Virtual Private Network
Network Services
Web Content Caching
Network Object Mgmt
Remote Access Services (RADIUS)
Application Proxy Services
Quality of Service (bandwidth)
Firewall Service
Load Balancing
Internet Services
HTTP - Page Rendering
File Transfer Services (FTP)
Web Application Server
Secure Browser Communications - SSL
Web Application Interface Protocols CGI / NSAPI / ISAPI
State & Session Management
Email Transport Services
Client Services
Certificates
Common Internet Services
Web Application Services
Commerce
Catalog Capabilities (products & services)
Quote (Price & Availability)
Product Details / Specs
Order Placement
Shopping Cart
Tax & Shipping Calculations
Compare Products / Services
Transaction Processing Capabilities (physical & electronic)
Needs Assessment / Buyer Assistant
Electronic License Distribution & Management
Product Configurator
Order Status / Order History
Advertisement & Promotion Capabilities
Lead Generation & Referral
Auction Capabilities
Content Channels
Download Capabilities
Chat Capabilities (Real-time)
Push Technology Capabilities
Generate Coordinated / Targeted Messages (outbound email)
Discussion Forums (newsgroups)
Manage Email Receipt & Delivery (inbound email)
Content Subscriptions
Dynamic Rendering (template based publishing)
FAQs
Administrative & Miscellaneous
Shareholder Services
On-line Recruiting
Legal Services
Customer Relationship Mgmt
User Profile Mgmt (Active Profiling)
Dynamically Facilitate Communities of Interest
Match Web content to specific user profiles
Customer Feedback & Surveys
Events, Calendaring & Registration
Content Mgmt & Publishing Services
Content Development Tools
Content Management Capabilities
Content Approval
Content Workflow
Content Review & Testing Tools
Localization / Translation Capabilities
Text-only Rendering Capabilities
Staging & Deployment Tools
Education Services
Curriculum Generation / Marketing Collateral
Register for training / Order Training
Online Training
Training Account Status
Web Customer Service
Product Registration
Web Based Self Support / Knowledge Search / Diagnostics
Create & Manage Service Cases / Consulting Follow-up
Online Support (Call Center Telephony Integration, Chat)
Returns & Warranty Claims
Proactive Service Notification
Consulting Services, Literature & Partner Referral
Common Web Services
Data Services
Data Access Adapters
Application Data Storage
Integration Capabilities
Financials Integration
ERP Integration
Call Center Integration
3rd party Integration Capabilities (Content, Training)
Sales Force Integration
Human Resources Integration
Transaction Integration (Fulfillment / Payment / 3rd party)
Miscellaneous Services
Locator Capabilities - Channel Partners, Ed. Centers
Search Capabilities
Passive Profiling Capabilities
Streaming Video & Audio Capabilities
Web Event Logging
Directory Services
Validation, Management & Storage of Base Profile Data
Management. & Storage of Network Object Data
Assignment of User Profiles to Communities
Validation, Management & Storage of Base Community Data
Management & Operations
Administrative Auditing
Auditing & Billing for Usage - (Charge-back)
Community & Role Management
Configuration Management Capabilities
Log Analysis Capabilities
Web Performance Monitoring Capabilities
Redundancy / Backup Capabilities
Web Application Staging
Rules & Policy Management
Network Management
Web App. Admin Capabilities (store, training, service)
Web Developer Services
Web Application Development Tools (scripting and coding)
Web Site Testing Tools (performance & link spiders)
Web Application Debugging Utilities
Web Application Revision Control System

Figure 1L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62
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63
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64
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65
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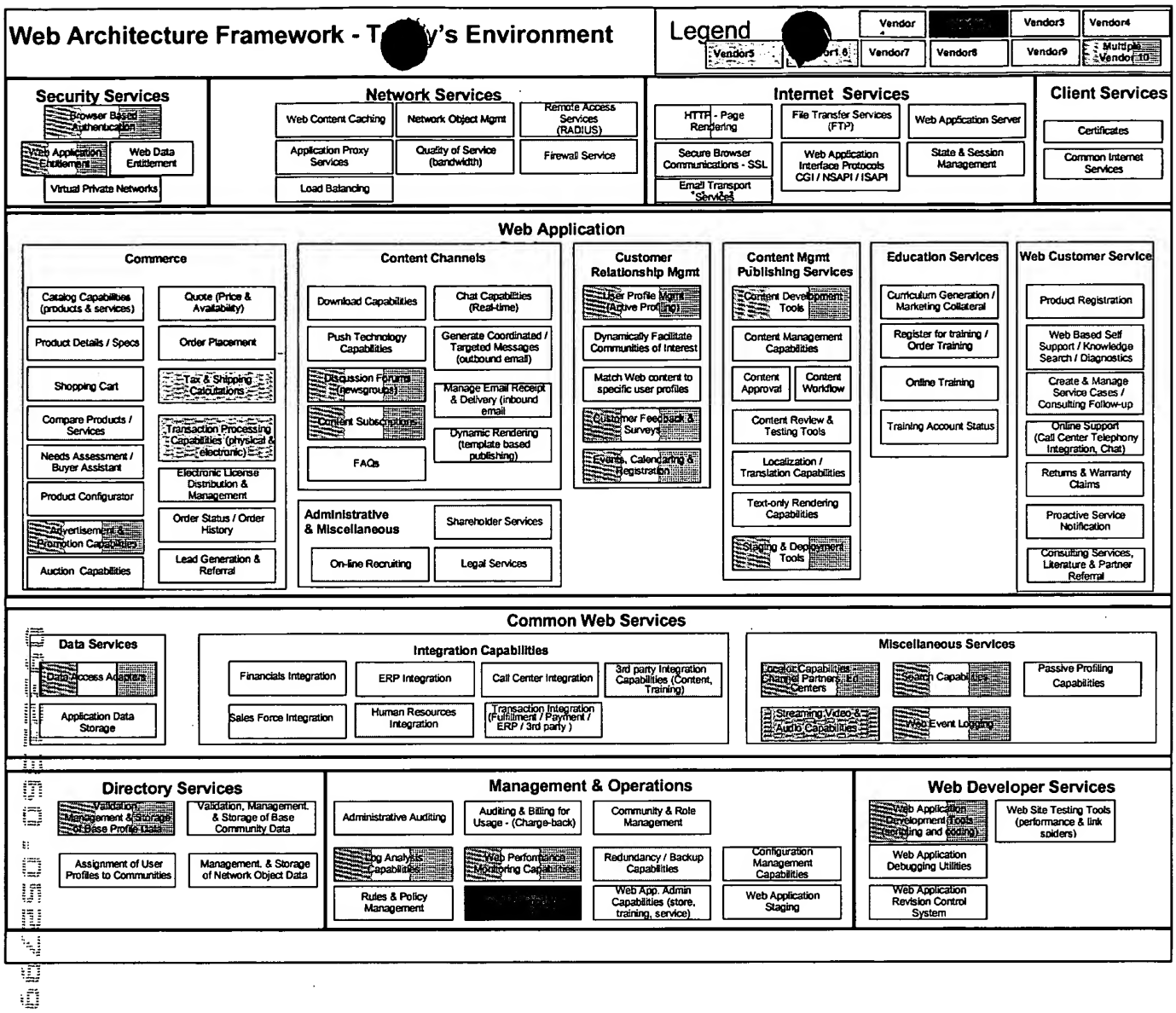
Figure 1L-1


Web Architecture Framework - T y's Environment
Legend
Vendor
Vendor3
Vendor4
Vendor5
Vendor7
Vendor8
Vendor9
Multiple Vendor 10
Security Services
Browser Based Authentication
Web Application Entitlement
Web Data Entitlement
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Web Application Server
Secure Browser Communications - SSL
Web Application Interface Protocols CGI / NSAPI / ISAPI
State & Session Management
Email Transport Services
Client Services
Certificates
Common Internet Services
Web Application
Commerce
Catalog Capabilities (products & services)
Quote (Price & Availability)
Product Details / Specs
Order Placement
Shopping Cart
Tax & Shipping Calculations
Compare Products / Services
Transaction Processing Capabilities (physical & electronic)
Needs Assessment / Buyer Assistant
Electronic License Distribution & Management
Product Configurator
Order Status / Order History
Advertisement & Promotion Capabilities
Lead Generation & Referral
Auction Capabilities
Content Channels
Download Capabilities
Chat Capabilities (Real-time)
Push Technology Capabilities
Generate Coordinated / Targeted Messages (outbound email)
Discussion Forums (newsgroups)
Manage Email Receipt & Delivery (inbound email)
Content Subscriptions
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On-line Recruiting
Legal Services
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User Profile Mgmt (Active Profiling)
Dynamically Facilitate Communities of Interest
Match Web content to specific user profiles
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Content Mgmt Publishing Services
Content Development Tools
Content Management Capabilities
Content Approval
Content Workflow
Content Review & Testing Tools
Localization / Translation Capabilities
Text-only Rendering Capabilities
Staging & Deployment Tools
Education Services
Curriculum Generation / Marketing Collateral
Register for training / Order Training
Online Training
Training Account Status
Web Customer Service
Product Registration
Web Based Self Support / Knowledge Search / Diagnostics
Create & Manage Service Cases / Consulting Follow-up
Online Support (Call Center Telephony Integration, Chat)
Returns & Warranty Claims
Proactive Service Notification
Consulting Services, Literature & Partner Referral
Common Web Services
Data Services
Data Access Agents
Application Data Storage
Integration Capabilities
Financials Integration
ERP Integration
Call Center Integration
3rd party Integration Capabilities (Content, Training)
Sales Force Integration
Human Resources Integration
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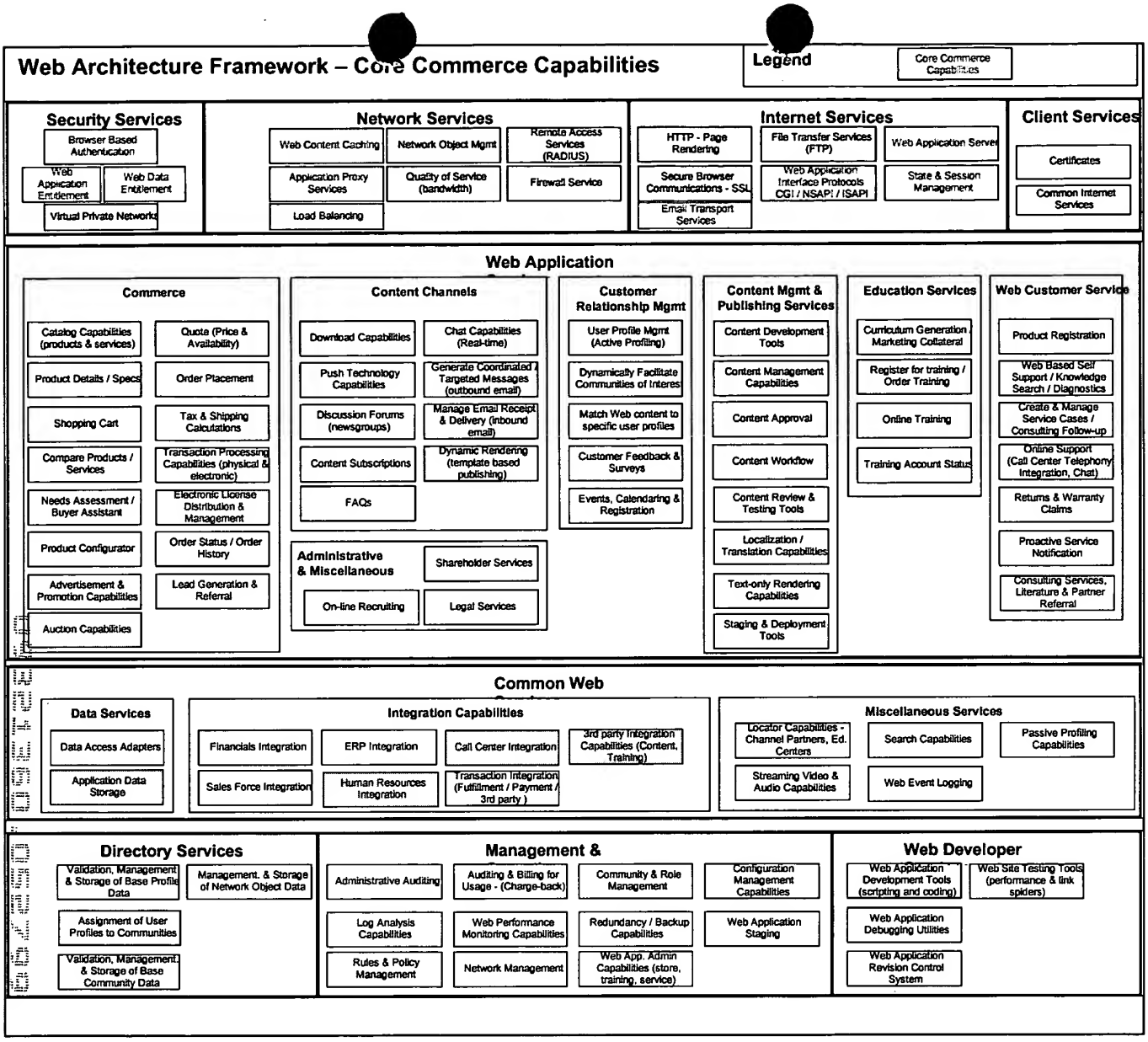
Web Event Logging
Directory Services
Validation, Management & Storage of Base Profile Data
Validation, Management, & Storage of Base Community Data
Assignment of User Profiles to Communities
Management, & Storage of Network Object Data
Management & Operations
Administrative Auditing
Auditing & Billing for Usage - (Charge-back)
Community & Role Management
Log Analysis Capabilities
Web Performance Monitoring Capabilities
Redundancy / Backup Capabilities
Configuration Management Capabilities
Rules & Policy Management
Web App. Admin Capabilities (store, training, service)
Web Application Staging
Web Developer Services
Web Application Development Tools (scripting and coding)
Web Site Testing Tools (performance & link spiders)
Web Application Debugging Utilities
Web Application Revision Control System

Figure 1M


Web Architecture Framework – Core Commerce Capabilities
Legend
Core Commerce Capabilities
Security Services
Browser Based Authentication
Web Application Entitlement
Web Data Entitlement
Virtual Private Network
Network Services
Web Content Caching
Network Object Mgmt
Remote Access Services (RADIUS)
Application Proxy Services
Quality of Service (bandwidth)
Firewall Service
Load Balancing
Internet Services
HTTP - Page Rendering
File Transfer Services (FTP)
Web Application Server
Secure Browser Communications - SSL
Web Application Interface Protocols CGI / NSAPI / ISAPI
State & Session Management
Email Transport Services
Client Services
Certificates
Common Internet Services
Web Application
Commerce
Catalog Capabilities (products & services)
Quote (Price & Availability)
Product Details / Specs
Order Placement
Shopping Cart
Tax & Shipping Calculations
Compare Products / Services
Transaction Processing Capabilities (physical & electronic)
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Product Configurator
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Auction Capabilities
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Chat Capabilities (Real-time)
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Discussion Forums (newsgroups)
Manage Email Receipt & Delivery (inbound email)
Content Subscriptions
Dynamic Rendering (template based publishing)
FAQs
Administrative & Miscellaneous
Shareholder Services
On-line Recruiting
Legal Services
Customer Relationship Mgmt
User Profile Mgmt (Active Profiling)
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Content Approval
Content Workflow
Content Review & Testing Tools
Localization / Translation Capabilities
Text-only Rendering Capabilities
Staging & Deployment Tools
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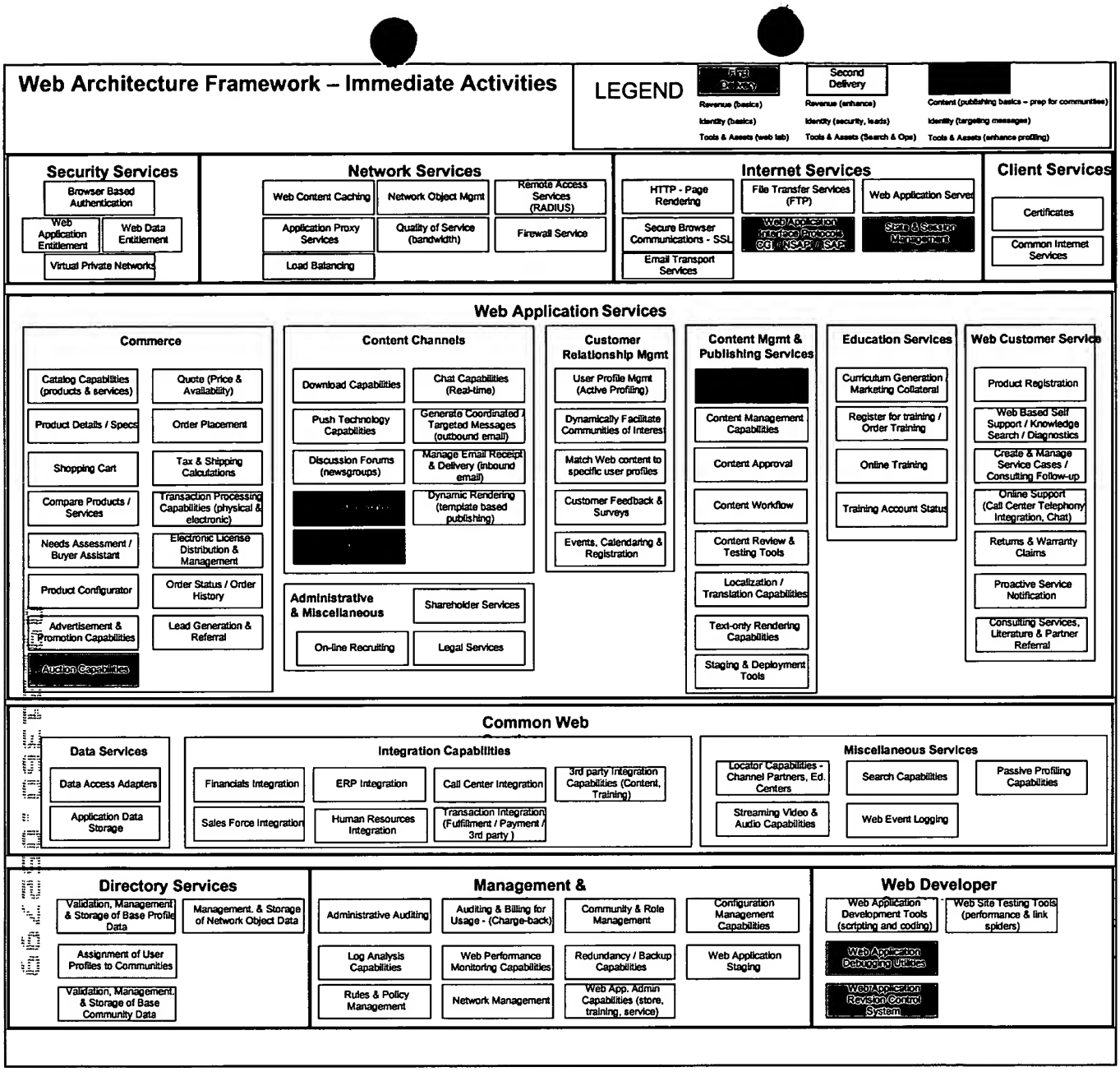
Figure 1N


Web Architecture Framework – Immediate Activities
LEGEND
Second Delivery
Revenue (basics)
Identity (basics)
Tools & Assets (web lab)
Revenue (enhance)
Identity (security, leads)
Tools & Assets (Search & Ops)
Content (publishing basics – prep for communities)
Identity (targeting messages)
Tools & Assets (enhance profiling)
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Web Application Revision Control System

Figure 1P

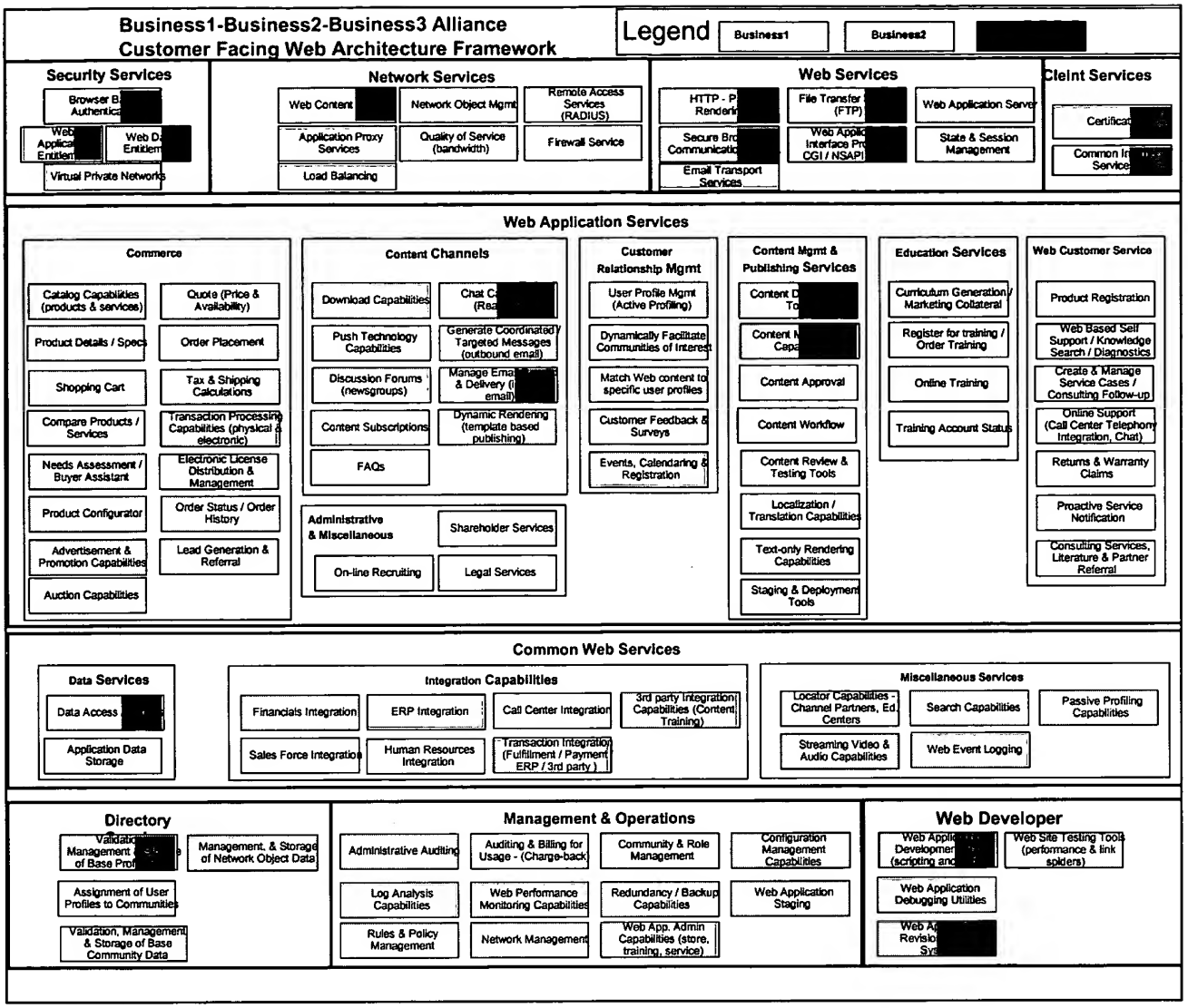
Core Commerce Capabilities - Infrastructure Services

Legend: ■ Available Today

Core Capabilities	Existing Capabilities
Browser Based Authentication	☐ Verifies user identity using built-in browser functionality ☐ Maintains authentication information throughout sessions ☐ Utilizes centralized directory of profiles ☐ Provides LDAP compatibility ☐ Provides NDS Compatibility
Web Application Entitlement	☐ Restricts access to specific web applications based upon user privileges ☐ Determines if a user or group of users have permission to perform an operation in a specific application ☐ Utilizes centralized directory of profiles for entitlement data ☐ Provides LDAP compatibility ☐ Provides NDS compatibility
Web Data Entitlement	☐ Restricts access to web content and data based upon user privileges ☐ Determines if a user or group of users have permission to manipulate web data (create, read, update, delete) ☐ Utilizes centralized directory of profiles for entitlement data ☐ Provides LDAP compatibility ☐ Provides NDS compatibility
Web Content Caching	■ Stores frequently requested web pages and graphics in a temporary location ■ Serves up previously cached content without accessing original source ■ Updates cache automatically to ensure integrity of content
Application Reverse Proxy Services	■ Passes requests from external clients to internal web servers and return results ■ Serves as trusted agent to access internal machines on the behalf of clients ■ Hides IP Addresses of machines inside a firewall from external clients ■ Provides configuration control over external access permissions
Load Balancing	☐ Spreads tasks among application servers using and intelligent load-balance scheme (CPU utilization) ☐ Provides a centralized task distribution mechanism for routing services ☐ Identifies servers that are off-line and re-route traffic
Firewall Service	■ Protects resources on a private network from users of other networks ■ Filters network traffic based on security rules ☐ Provides alarm notification of attacks ■ Provides logging and reporting functions ■ Provides port and traffic control
HTTP - Page Rendering	■ Serves requested web pages and graphics from web servers to client web browsers ☐ Supports page rendering for multiple languages ■ Supports multiple content sources (file system, databases, scripts)

Core Capabilities	Existing Capabilities
Secure Browser Communications - SSL	■ Provides encrypted communication with common web browsers ■ Supports the Secure Sockets Layer protocol 2.0 ■ Supports the Secure Sockets Layer protocol 3.0
File Transfer Services (FTP)	■ Transfers files between computers on the Internet using the standard File Transfer Protocol (FTP) ■ Stores files on a file system or database ■ Provides mechanism to manage access control for files on a FTP server
Web Application Interface Protocols CGI/NSAPI/ISAPI	■ Supports Common Gateway Interface (CGI) protocol ■ Supports Netscape' API (NSAPI) protocol ☐ Supports Microsoft's API (ISAPI) protocol ☐ Provides alternative to the interface mechanism that may be used
Web Application Server Plug-in	☐ Executes web application logic ☐ Utilizes user session information to support interactive applications ☐ Provides scalability features ☐ Provides fail-over features ☐ Provides application programming logic
State and Session Management	■ Provides mechanism to note and remember one or more preceding events in a given sequence of interactions with the user or application ☐ Tracks state and session information ☐ Manages multiple independent sessions simultaneously active ■ Supports Client Cookies ☐ Supports Client URL Encoding ■ Supports Server Information with Client Cookies ■ Supports Server Information with URL Session Identifiers
Oracle Financials Integration	☐ Provides adapter or mechanism to communicate and transfer data at the functional level with Oracle Financials via API's ☐ Supports Oracle's API sets for external integration ☐ Supports Data Access Adapter capabilities
SIEBEL Integration	☐ Provides adapter or mechanism to communicate and transfer data at the functional level with Siebel via API's ☐ Supports Siebel's API sets for external integration ☐ Supports Data Access Adapter capabilities
Transaction Integration (Fulfillment/Payment/ ERP/3rd Party)	■ Provides adapter or mechanism to transfer transactional information to a fulfillment house, payment processing center, enterprise resource planning system or other third party ■ Provides reporting and logging functions to detect communication errors
3rd Party Integration Capabilities (Content, Training)	☐ Provides adapter or mechanism to communicate with external systems that provide additional content such as catalog information ☐ Provides reporting and logging functions to detect communication errors

Figure 1Q


Business1-Business2-Business3 Alliance
Customer Facing Web Architecture Framework
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Business2
Security Services
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Web D
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Virtual Private Networks
Network Services
Web Content
Network Object Mgmt
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Firewall Service
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Figure 1R

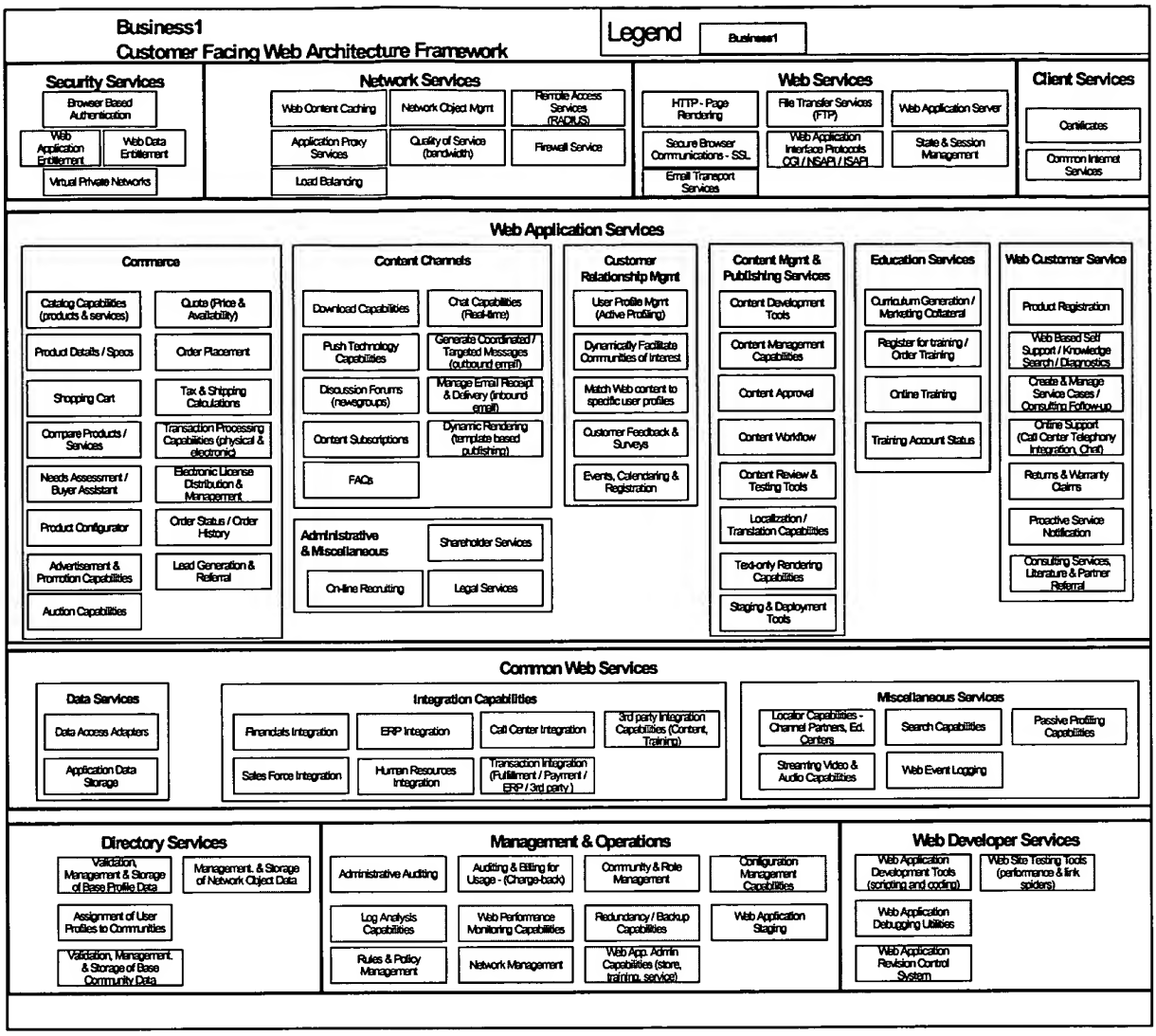
Business1
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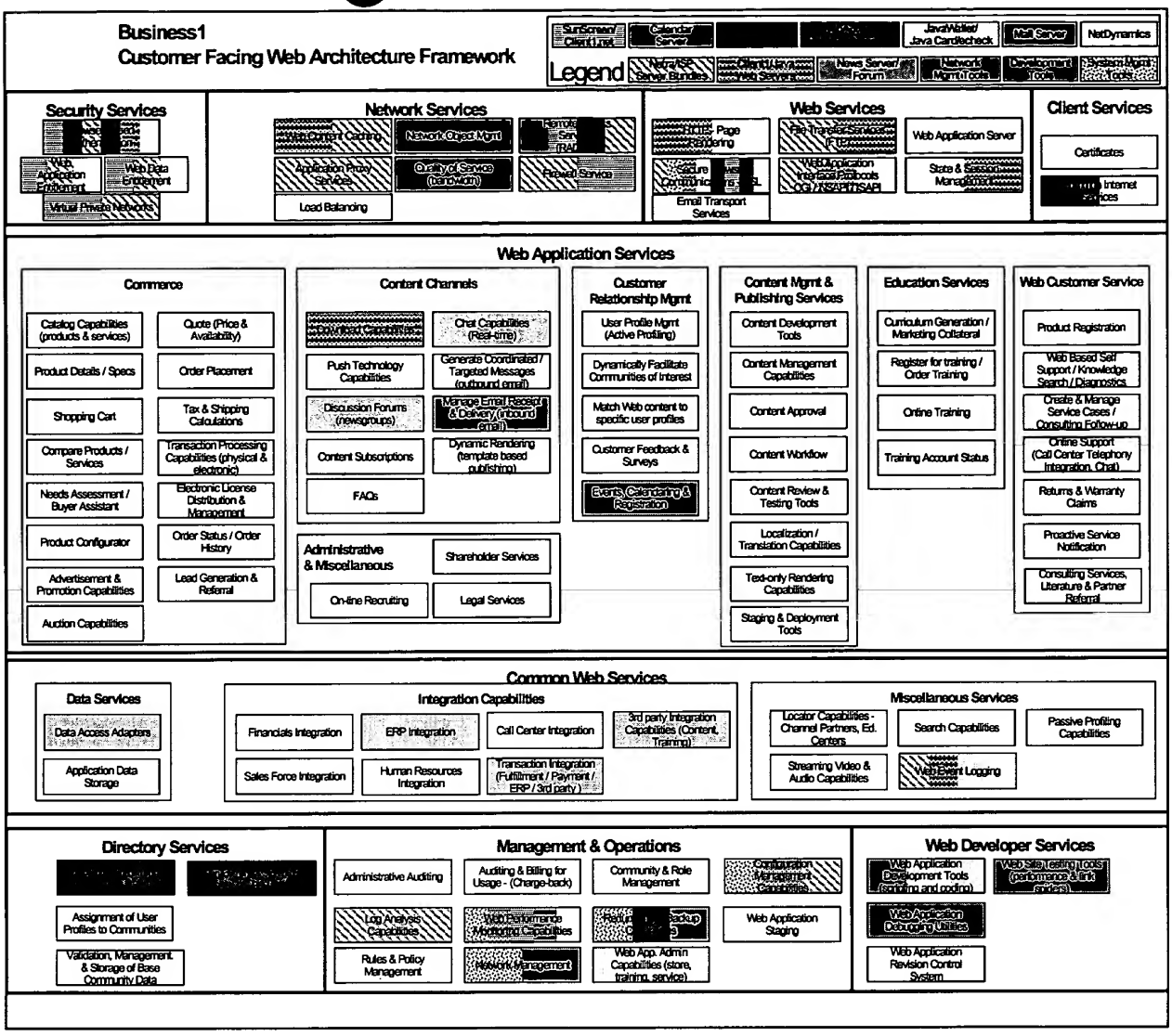
Figure 1S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Management & Operations
Web Developer Services

Figure 1T

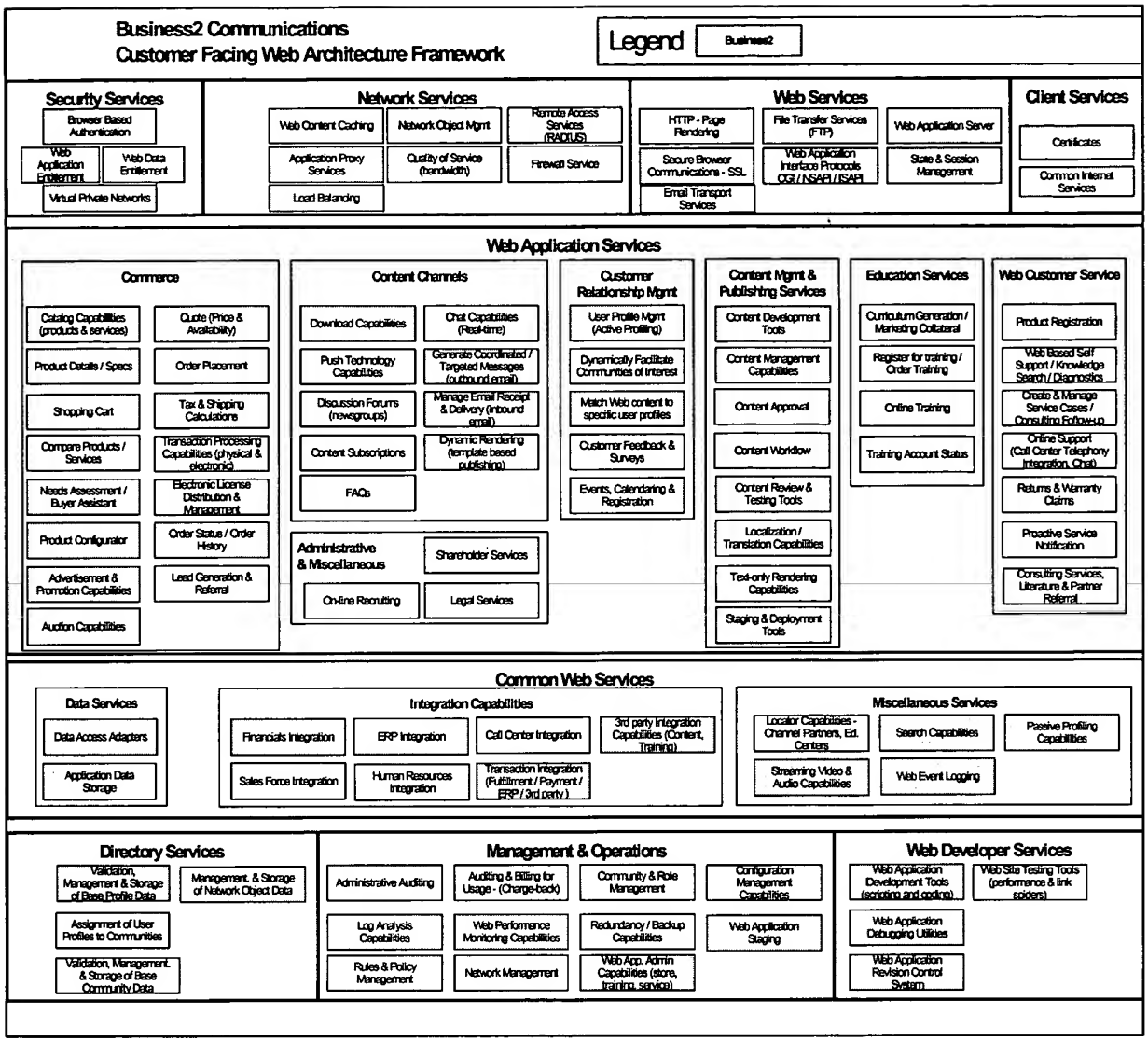
Business2 Communications
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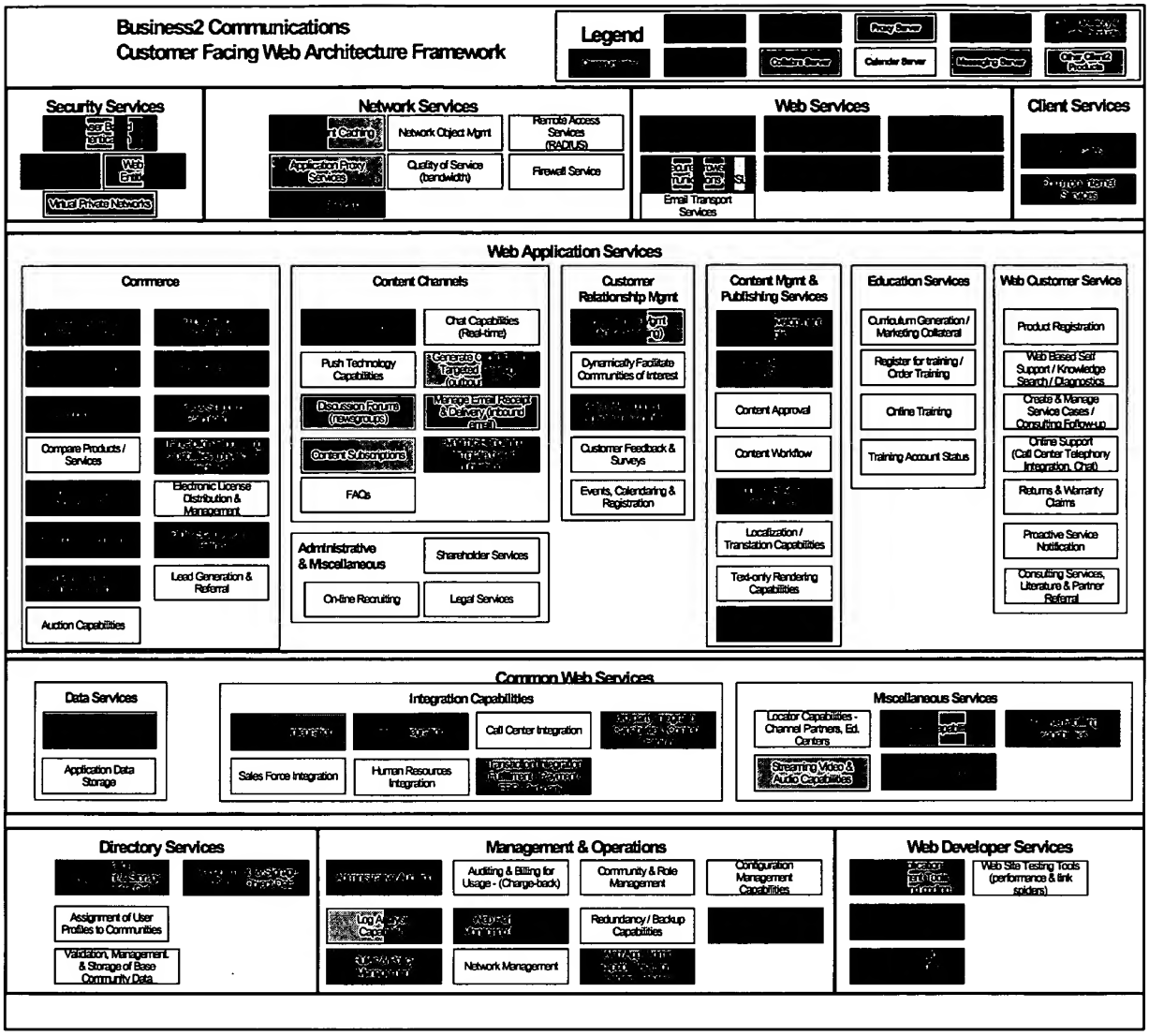
Figure 1U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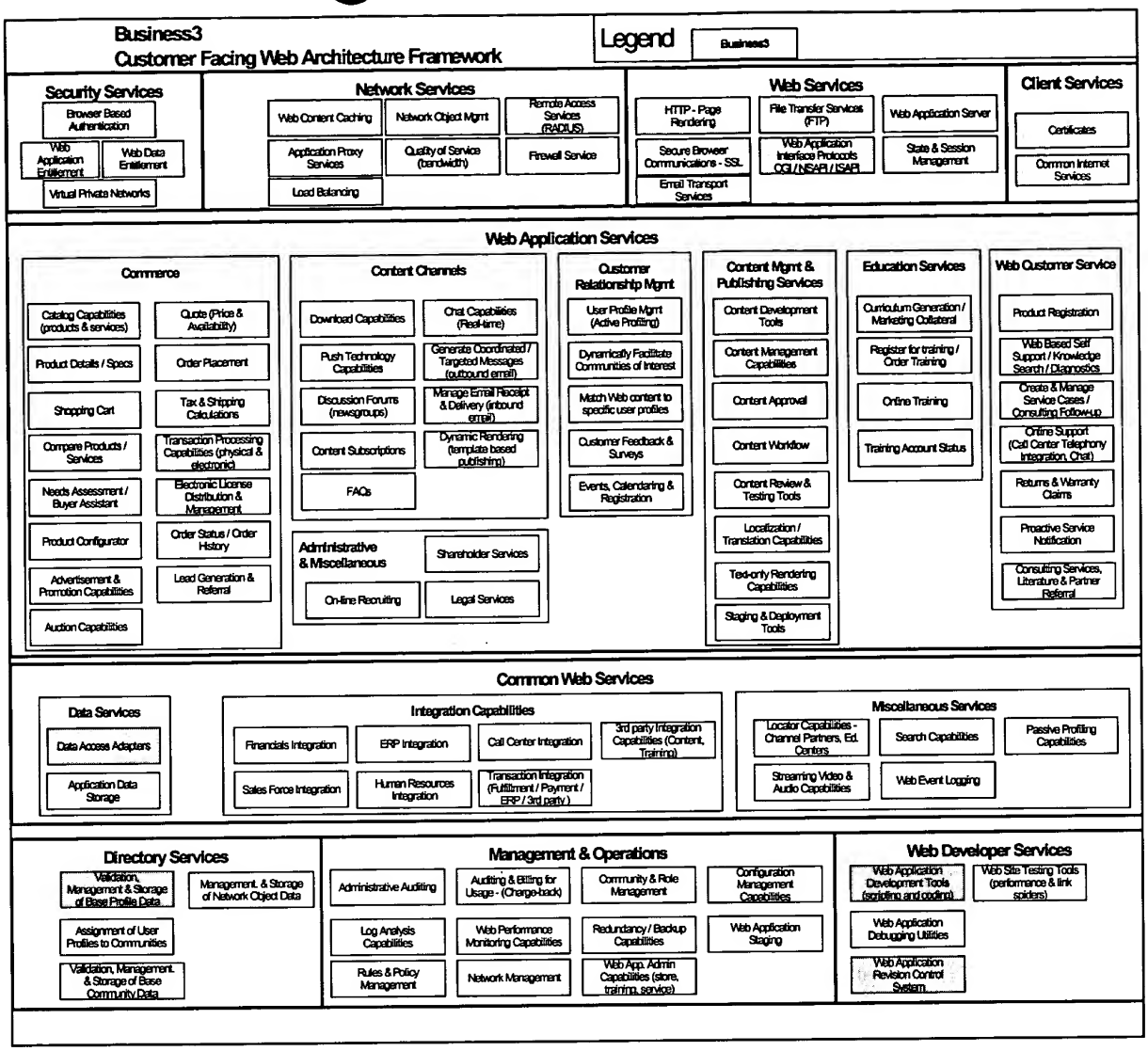
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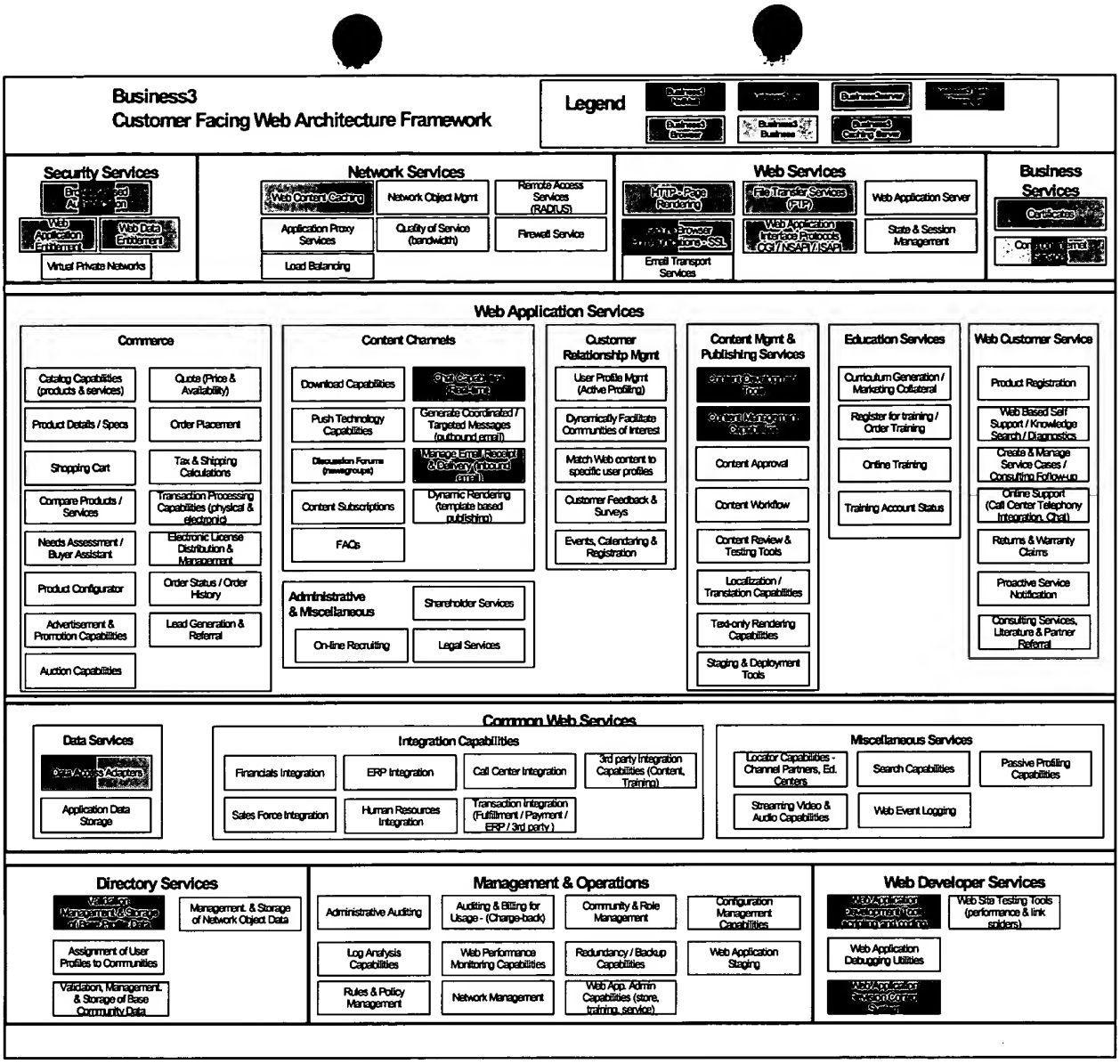
User Profile Mgmt (Active Profiling)
Dynamically Facilitate Communities of Interest
Match Web content to specific user profiles
Customer Feedback & Surveys
Events, Calendaring & Registration
Content Mgmt & Publishing Services
Content Development Tools
Content Management Capabilities
Content Approval
Content Workflow
Content Review & Testing Tools
Localization / Translation Capabilities
Text-only Rendering Capabilities
Staging & Deployment Tools
Education Services
Curriculum Generation / Marketing Collateral
Register for training / Order Training
Online Training
Training Account Status
Web Customer Service
Product Registration
Web Based Self Support / Knowledge Search / Diagnostics
Create & Manage Service Cases / Consulting Follow-up
Online Support (Call Center Telephony Integration, Chat)
Returns & Warranty Claims
Proactive Service Notification
Consulting Services, Literature & Partner Referral
Common Web Services
Data Services
Data Access Adapters
Application Data Storage
Integration Capabilities
Financials Integration
ERP Integration
Call Center Integration
3rd party Integration Capabilities (Content, Training)
Sales Force Integration
Human Resources Integration
Transaction Integration (Fulfillment / Payment / ERP / 3rd party)
Miscellaneous Services
Locator Capabilities - Channel Partners, Ed. Centers
Search Capabilities
Passive Profiling Capabilities
Streaming Video & Audio Capabilities
Web Event Logging
Directory Services
Validation, Management & Storage of Base Profile Data
Management & Storage of Network Object Data
Assignment of User Profiles to Communities
Validation, Management & Storage of Base Community Data
Management & Operations
Administrative Auditing
Auditing & Billing for Usage - (Charge-back)
Community & Role Management
Configuration Management Capabilities
Log Analysis Capabilities
Web Performance Monitoring Capabilities
Redundancy / Backup Capabilities
Web Application Staging
Rules & Policy Management
Network Management
Web App. Admin Capabilities (store, training, service)
Web Developer Services
Web Application Development Tools (scripting and coding)
Web Site Testing Tools (performance & link spiders)
Web Application Debugging Utilities
Web Application Revision Control System

Figure 1W


Business3
Customer Facing Web Architecture Framework
Legend
Security Services
Web Application Entitlement
Web Data Entitlement
Virtual Private Networks
Network Services
Web Content Caching
Network Object Mgmt
Remote Access Services (RADIUS)
Application Proxy Services
Quality of Service (bandwidth)
Firewall Service
Load Balancing
Web Services
Email Transport Services
Web Application Interface Protocols (CGI / NSAPI / ISAPI)
Web Application Server
State & Session Management
Business Services
Certificates
Web Application Services
Commerce
Catalog Capabilities (products & services)
Quote (Price & Availability)
Product Details / Specs
Order Placement
Shopping Cart
Tax & Shipping Calculations
Compare Products / Services
Transaction Processing Capabilities (physical & electronic)
Needs Assessment / Buyer Assistant
Electronic License Distribution & Management
Product Configurator
Order Status / Order History
Advertisement & Promotion Capabilities
Lead Generation & Referral
Auction Capabilities
Content Channels
Download Capabilities
Push Technology Capabilities
Discussion Forums (newsgroups)
Content Subscriptions
FAQs
Generate Coordinated / Targeted Messages (outbound email)
Dynamic Rendering (template based publishing)
Administrative & Miscellaneous
Shareholder Services
On-line Recruiting
Legal Services
Customer Relationship Mgmt
User Profile Mgmt (Active Profiling)
Dynamically Facilitate Communities of Interest
Match Web content to specific user profiles
Customer Feedback & Surveys
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Content Workflow
Content Review & Testing Tools
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Curriculum Generation / Marketing Collateral
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Human Resources Integration
Transaction Integration (Fulfillment / Payment / ERP / 3rd party)
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Streaming Video & Audio Capabilities
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Directory Services
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Assignment of User Profiles to Communities
Validation, Management, & Storage of Base Community Data
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Administrative Auditing
Auditing & Billing for Usage - (Charge-back)
Community & Role Management
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Log Analysis Capabilities
Web Performance Monitoring Capabilities
Redundancy / Backup Capabilities
Web Application Staging
Rules & Policy Management
Network Management
Web App. Admin Capabilities (store, training, service)
Web Developer Services
Web Site Testing Tools (performance & link spiders)
Web Application Debugging Utilities

Figure 1X

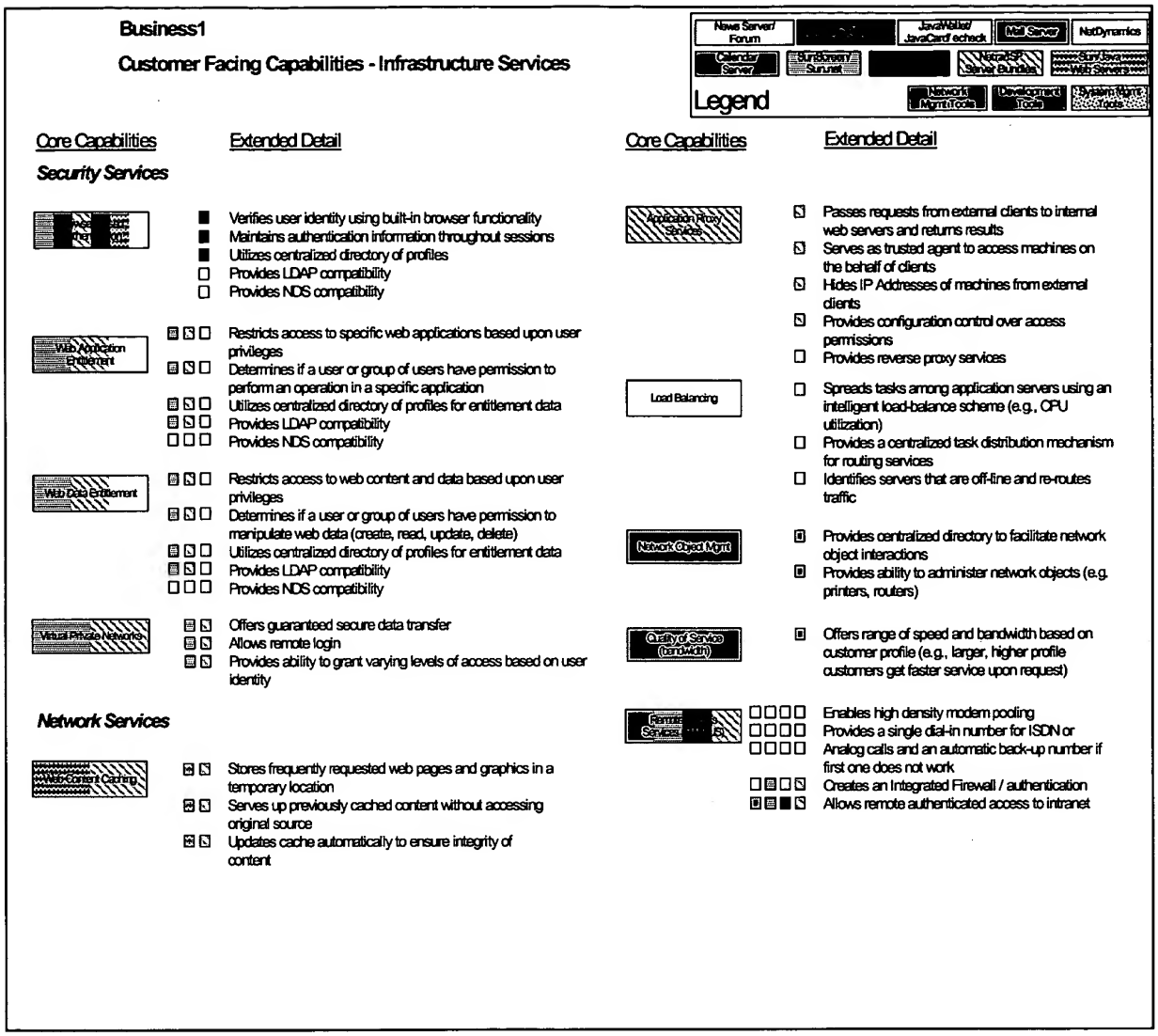

Business1
Customer Facing Capabilities - Infrastructure Services
News Server/ Forum
JavaMail/ JavaCard/ echeck
Mail Server
NetDynamics
Calendar Server
SunScreen/ Survivet
NetraSP Server Bundles
Sun/Java Web Servers
Legend
Network Mgmt Tools
Development Tools
System Mgmt Tools
Core Capabilities
Extended Detail
Security Services
Verifies user identity using built-in browser functionality
Maintains authentication information throughout sessions
Utilizes centralized directory of profiles
Provides LDAP compatibility
Provides NDS compatibility
Web Application Entitlement
Restricts access to specific web applications based upon user privileges
Determines if a user or group of users have permission to perform an operation in a specific application
Utilizes centralized directory of profiles for entitlement data
Provides LDAP compatibility
Provides NDS compatibility
Web Data Entitlement
Restricts access to web content and data based upon user privileges
Determines if a user or group of users have permission to manipulate web data (create, read, update, delete)
Utilizes centralized directory of profiles for entitlement data
Provides LDAP compatibility
Provides NDS compatibility
Virtual Private Networks
Offers guaranteed secure data transfer
Allows remote login
Provides ability to grant varying levels of access based on user identity
Network Services
Web Content Caching
Stores frequently requested web pages and graphics in a temporary location
Serves up previously cached content without accessing original source
Updates cache automatically to ensure integrity of content
Core Capabilities
Extended Detail
Application Proxy Services
Passes requests from external clients to internal web servers and returns results
Serves as trusted agent to access machines on the behalf of clients
Hides IP Addresses of machines from external clients
Provides configuration control over access permissions
Provides reverse proxy services
Load Balancing
Spreads tasks among application servers using an intelligent load-balance scheme (e.g., CPU utilization)
Provides a centralized task distribution mechanism for routing services
Identifies servers that are off-line and re-routes traffic
Network Object Mgmt
Provides centralized directory to facilitate network object interactions
Provides ability to administer network objects (e.g. printers, routers)
Quality of Service (bandwidth)
Offers range of speed and bandwidth based on customer profile (e.g., larger, higher profile customers get faster service upon request)
Remote Services
Enables high density modem pooling
Provides a single dial-in number for ISDN or
Analog calls and an automatic back-up number if first one does not work
Creates an Integrated Firewall / authentication
Allows remote authenticated access to intranet

Figure 1Y

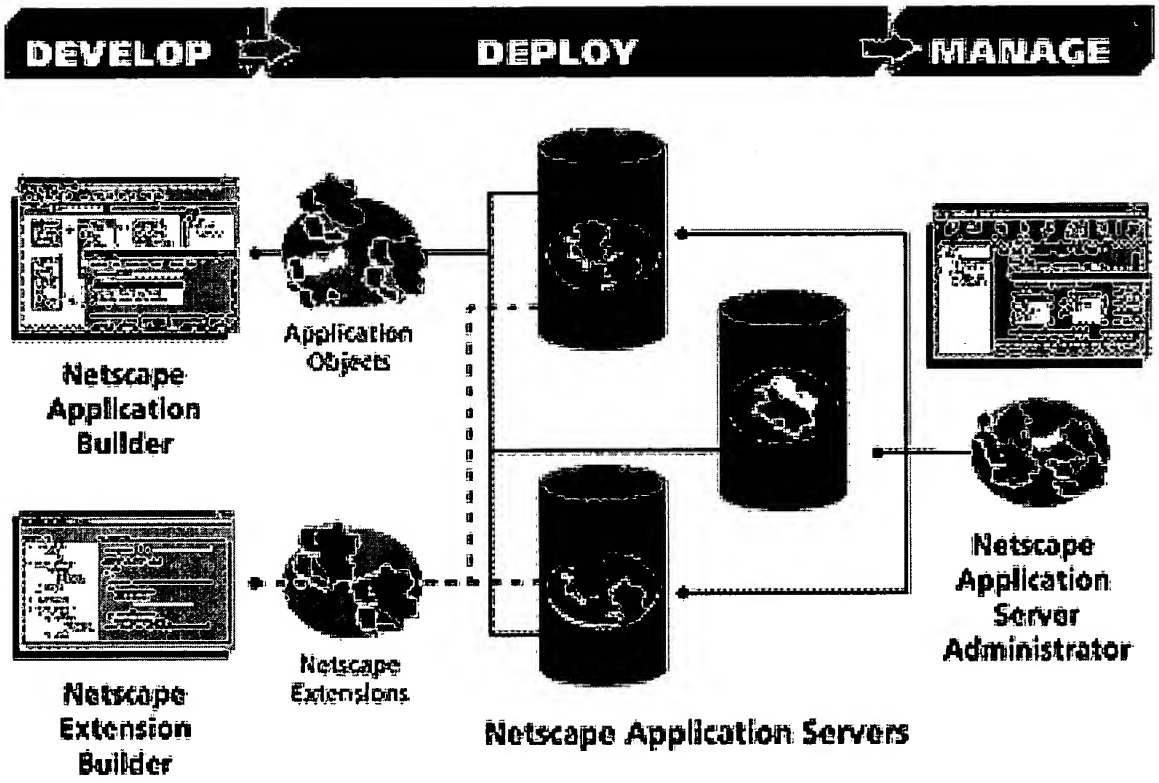

DEVELOP
DEPLOY
MANAGE
Application Objects
Netscape Application Builder
Netscape Extensions
Netscape Extension Builder
Netscape Application Servers
Netscape Application Server Administrator

Figure 1Z

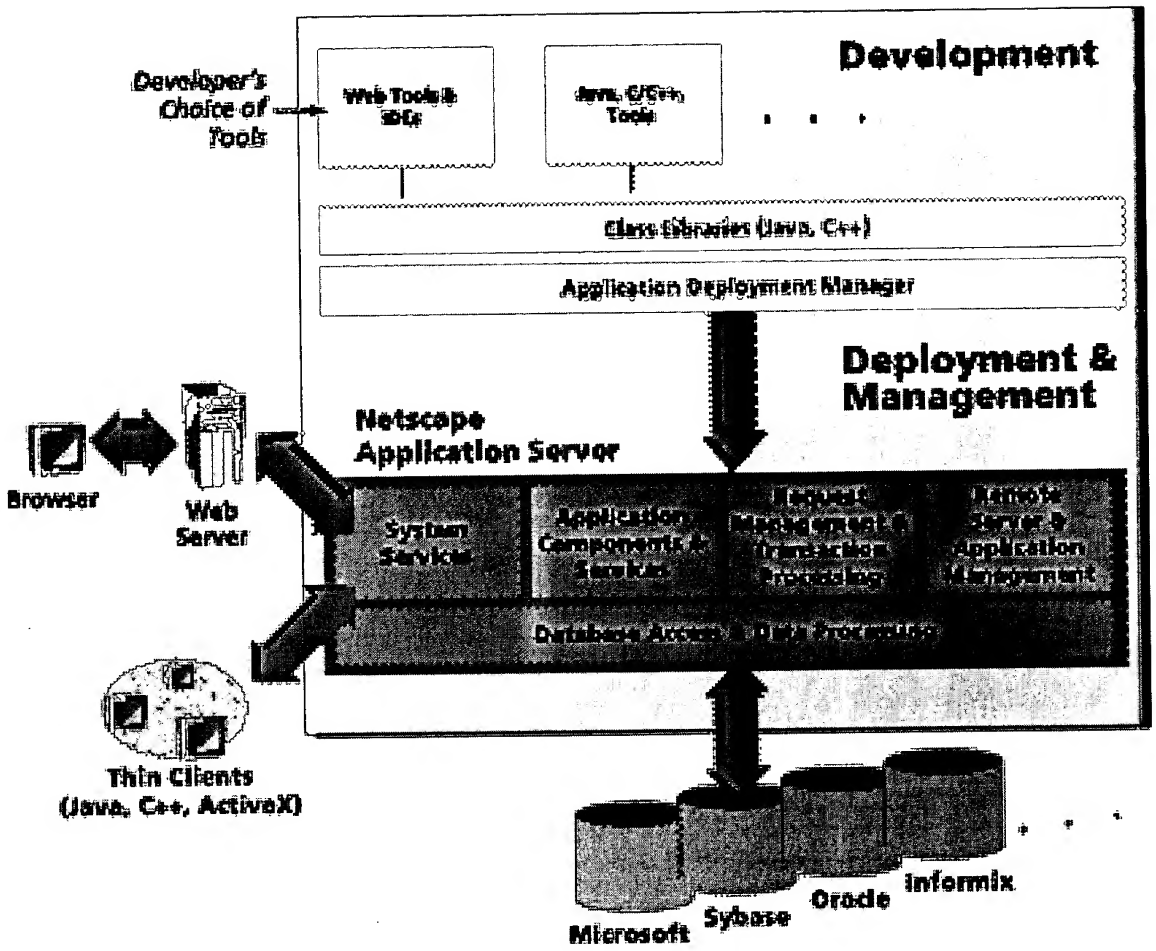

Development
Developer's Choice of Tools
Web Tools & SDK
Java, C/C++ Tools
Class Libraries (Java, C++)
Application Deployment Manager
Deployment & Management
Netscape Application Server
Browser
Web Server
System Services
Application Components & Services
Transaction Processing
Remote Server & Application Management
Database Access
Thin Clients (Java, C++, ActiveX)
Microsoft
Sybase
Oracle
Informix

Figure 1AA

Client2 ECXpert

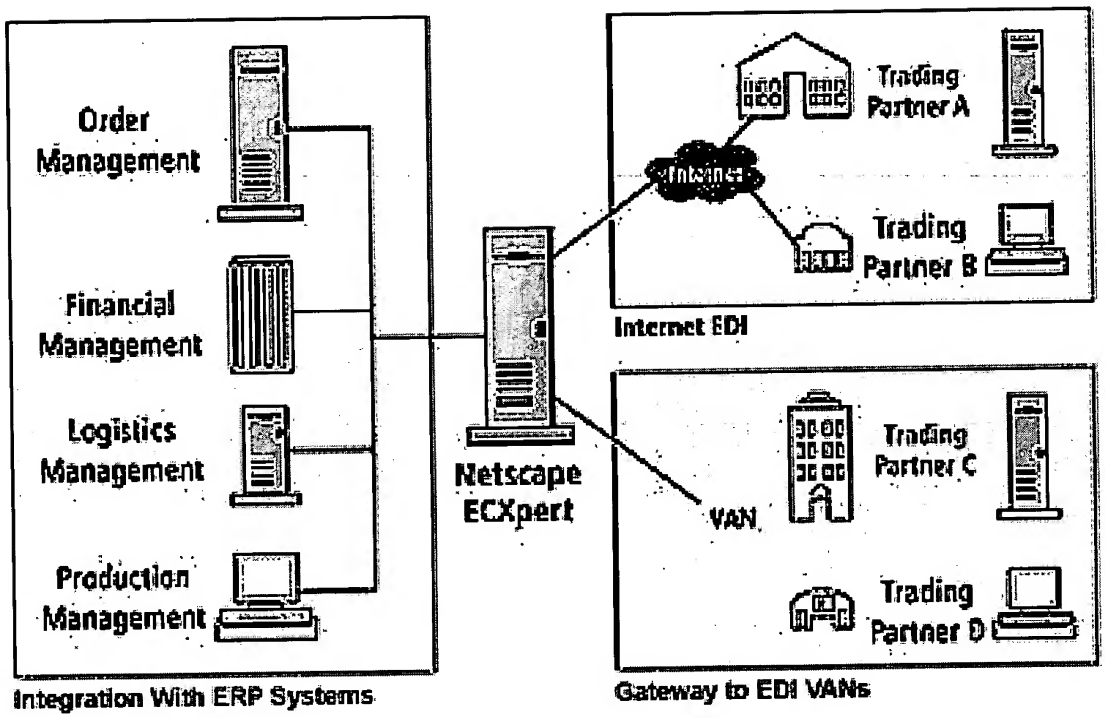


Figure 1AB

Client2 ECXpert

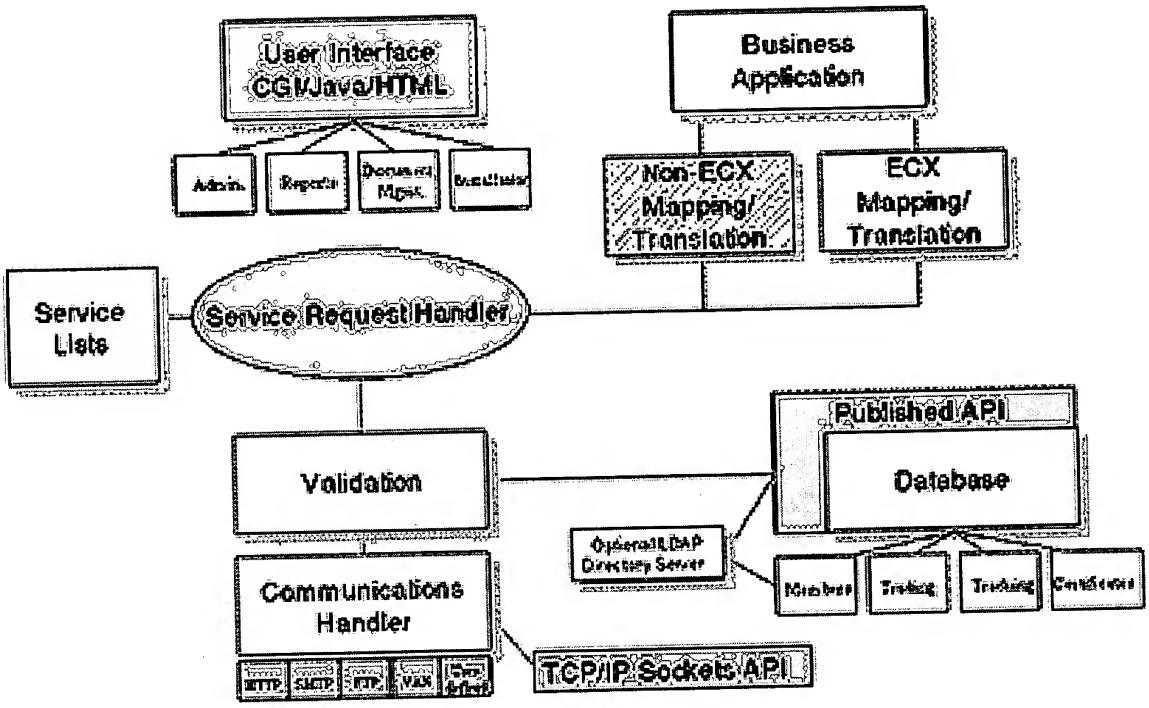


Figure 1AC

Client2 SellerXpert

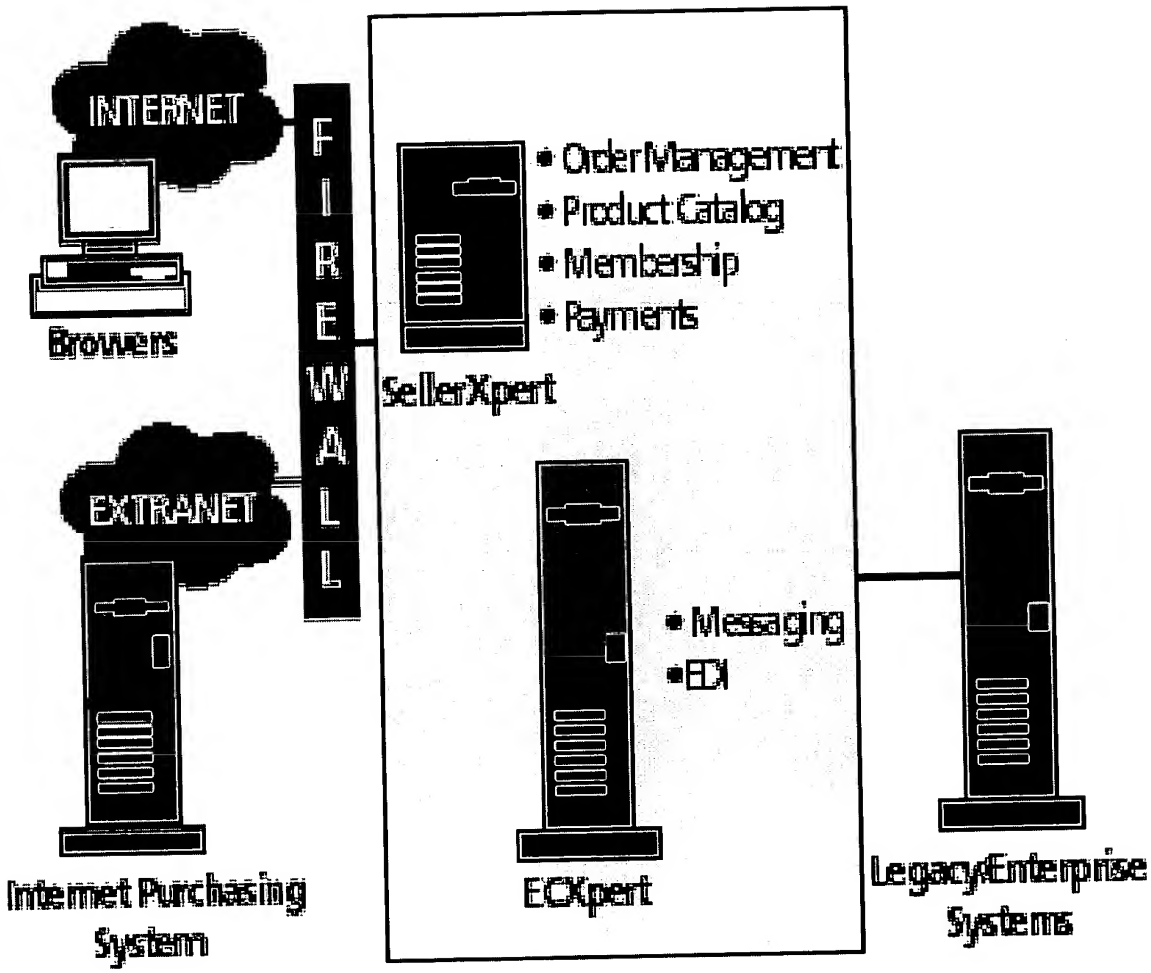


Figure 1AD

Client2 PublishingXpert

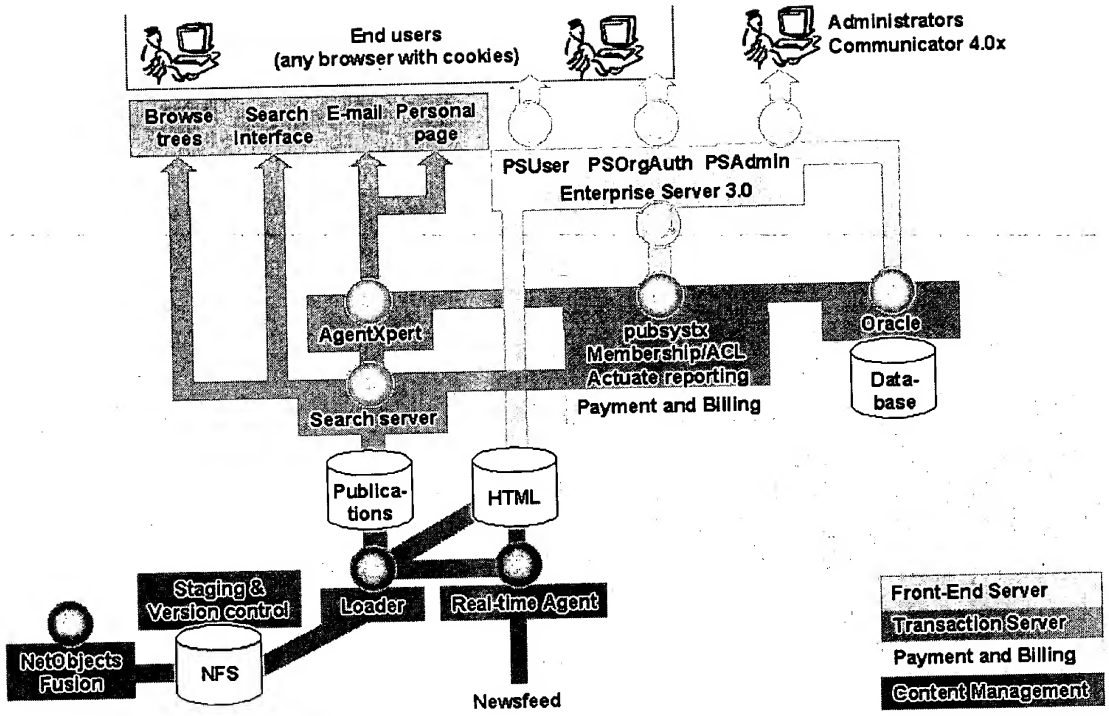
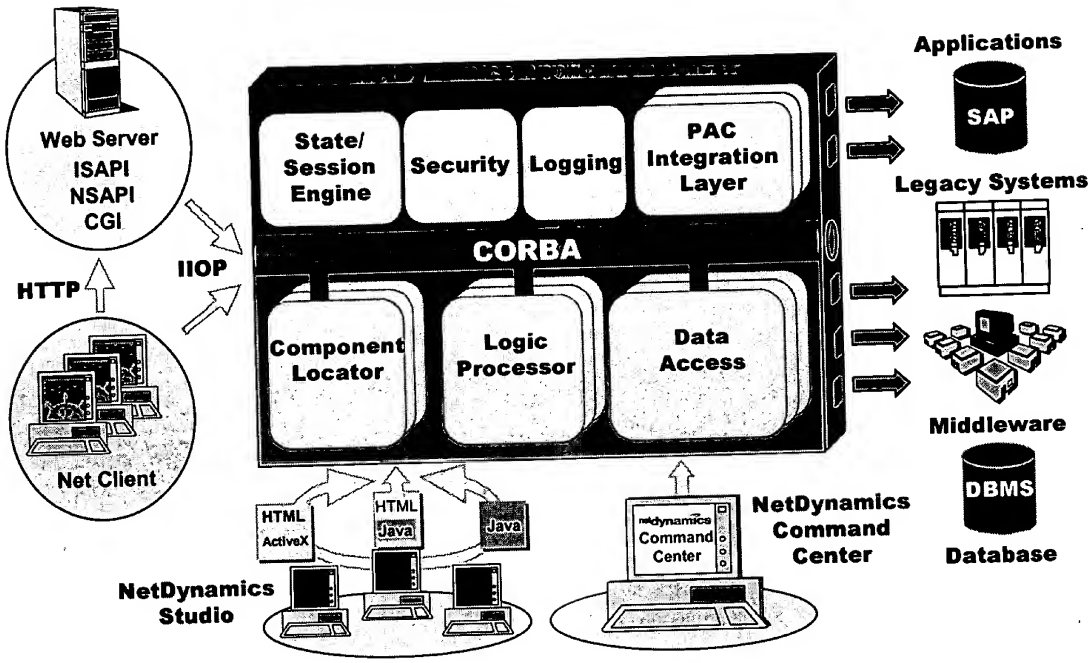


Figure 1AE

Client1 NetDynamics



1. Any Web browser requests a dynamic-page
2. The Web server notifies ColdFusion
3. ColdFusion processes the dynamic-page based on the CFML tags
4. ColdFusion generates an HTML page
5. The Web server sends the HTML page to the browser

Figure 1AF

Client1 Internet Mail Server

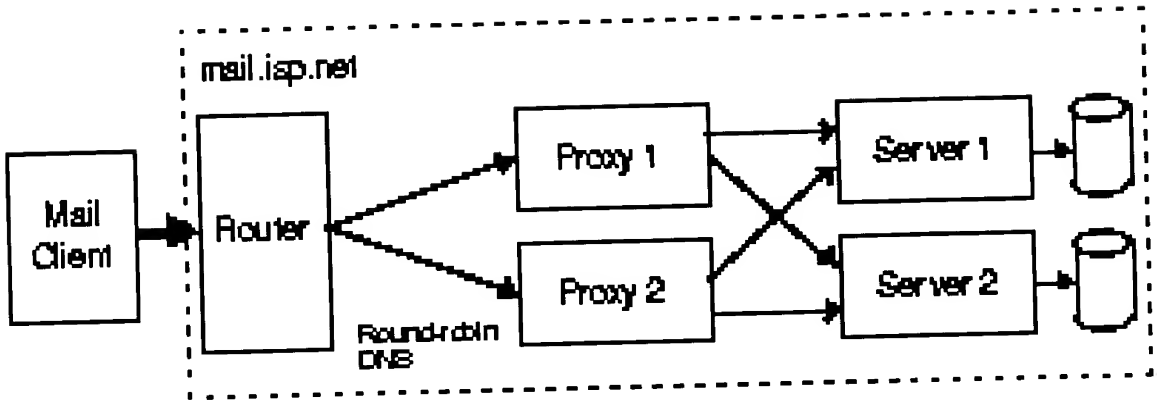


Figure 1AG

0538140.0

Client1 Internet News Server

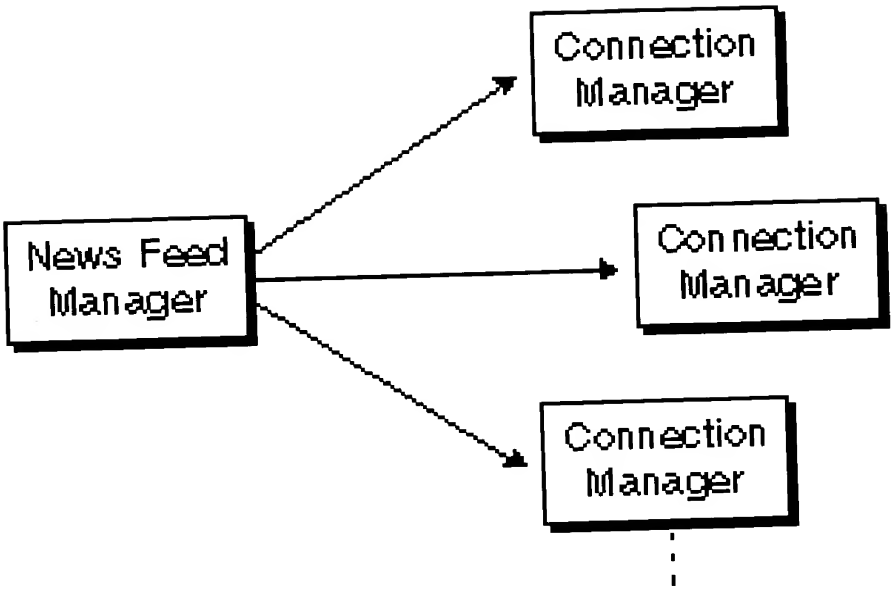


Figure 1AH

09/754,360 - 01/05/2001

Client1 Personal WebAccess Browser

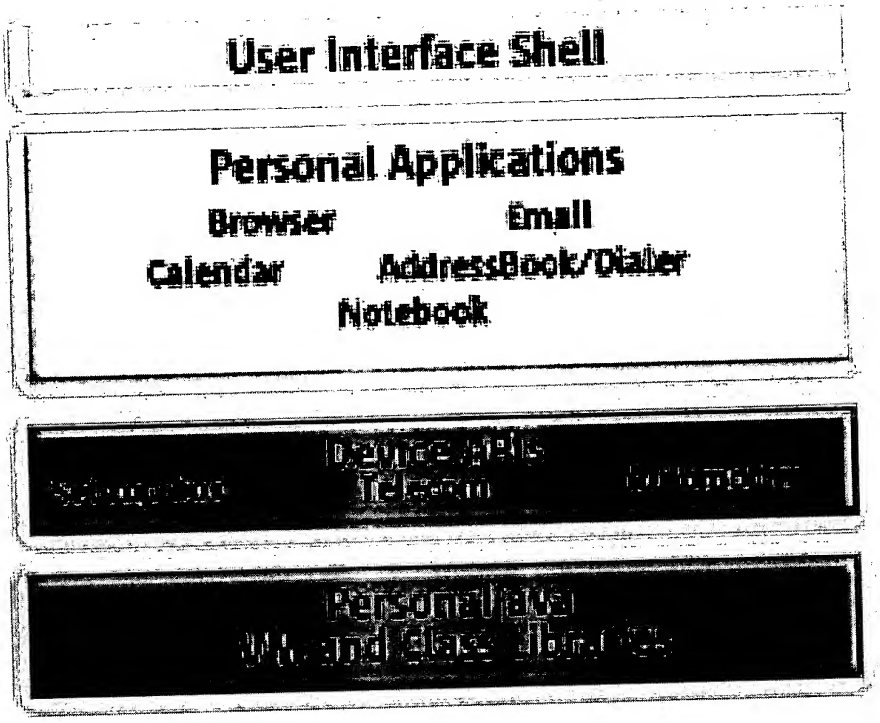


Figure 1AI

Client1 Directory Services

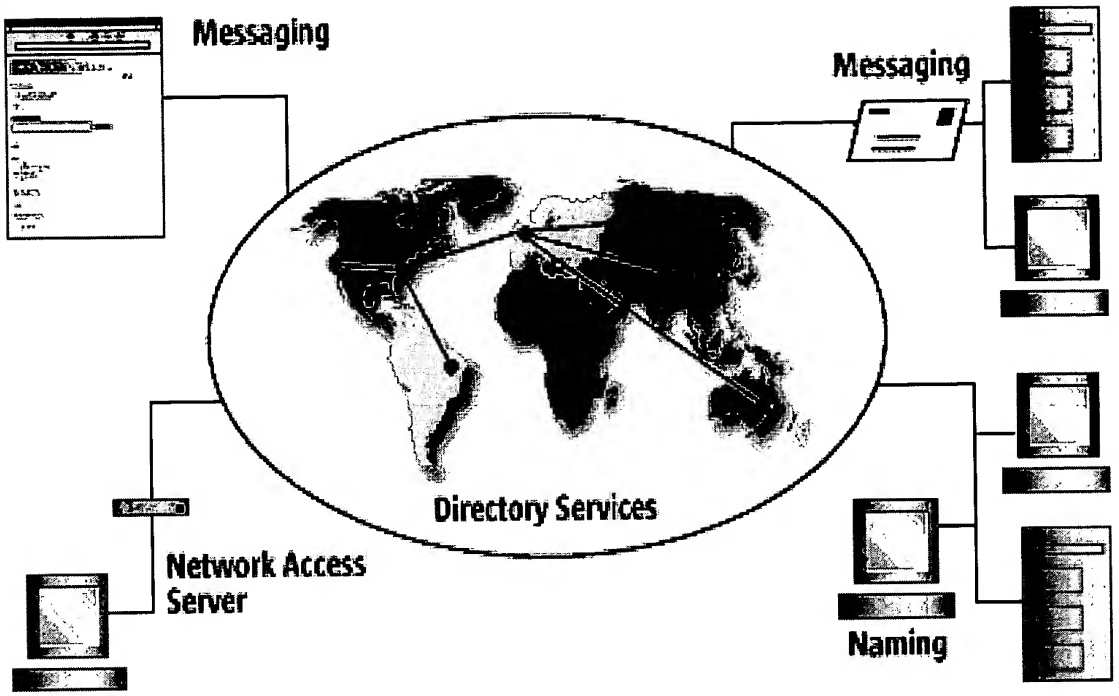


Figure 1AJ

Client1 JavaWallet

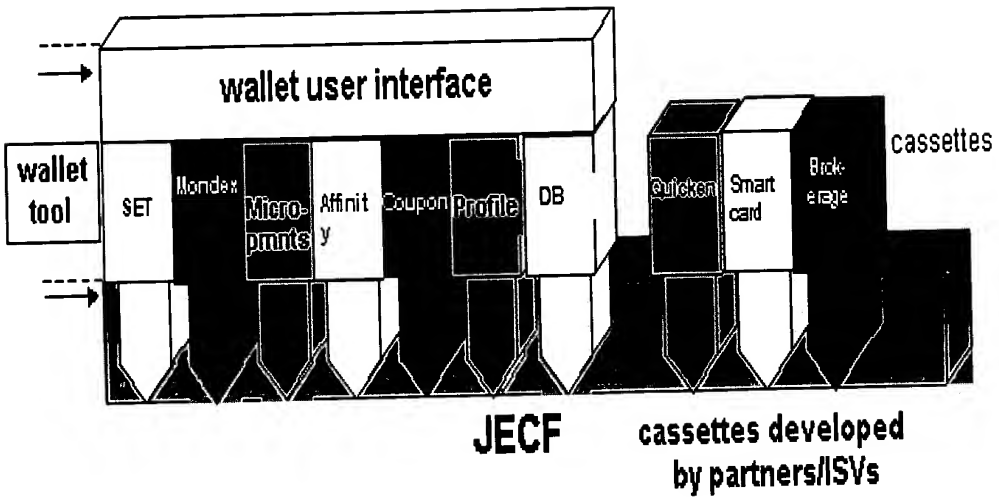


Figure 1AK

Document ID: 0.5.1.5.0.5.1.5.0.5.1.5.

Client1Screen Product Suite

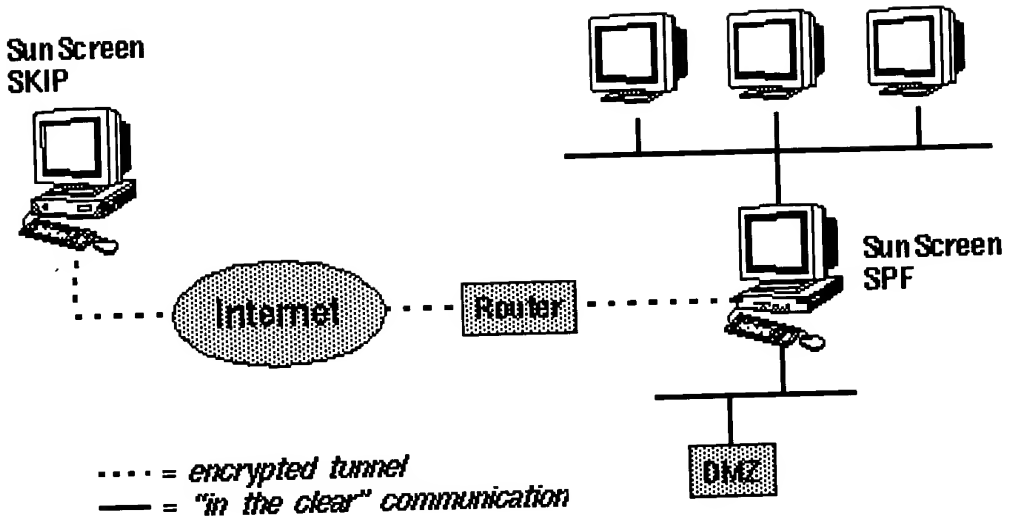


Figure 1AL

0 9 5 0 2 6 2 0 9 5 0 2 6 2 0 9

Netra Internet Server Bundle

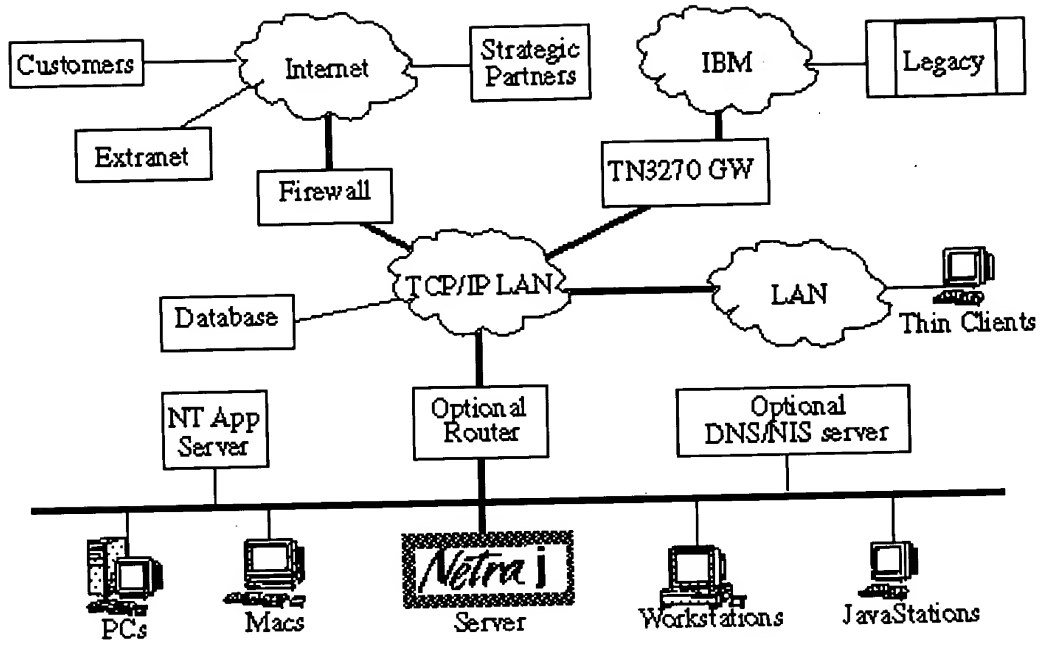


Figure 1AM

Solaris ISP Server Bundle

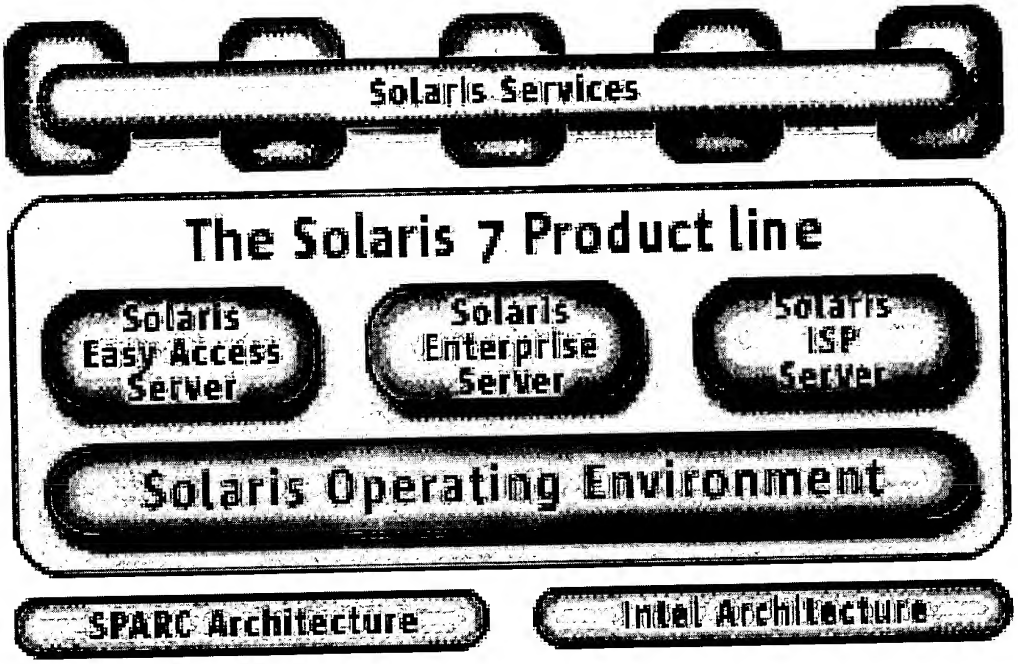
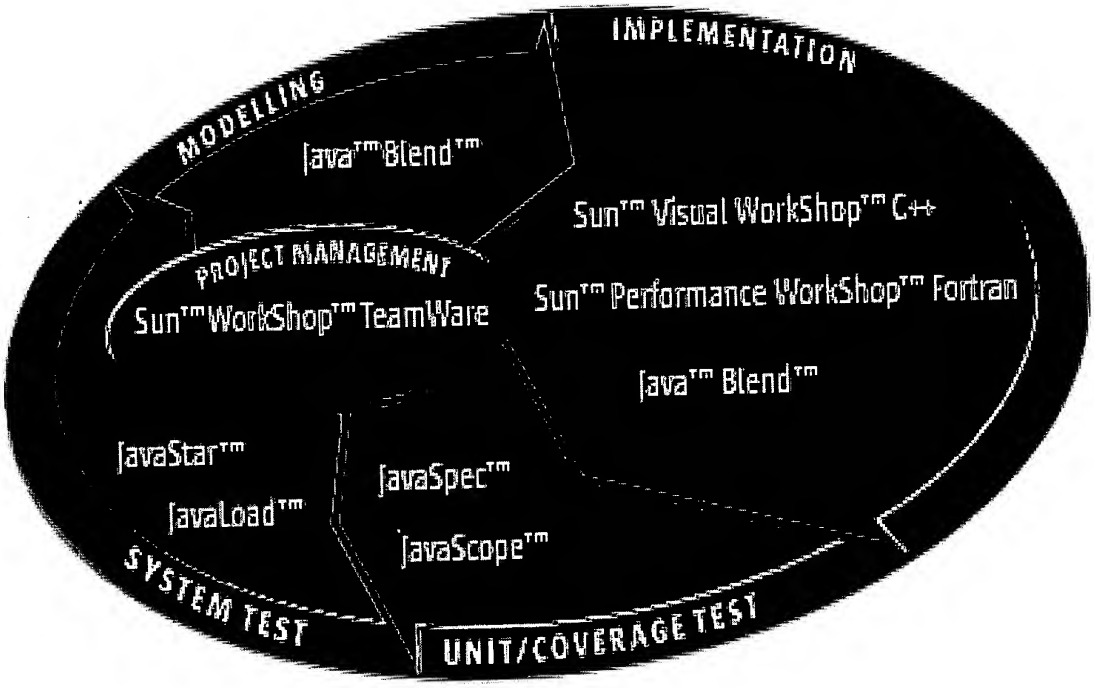


Figure 1AN

DRAWING - DO NOT SCALE

Development & Testing Tools



Oracle Exhibit 1009
Google v. Oracle
3:10-cv-03561-WHA

Figure 1AO

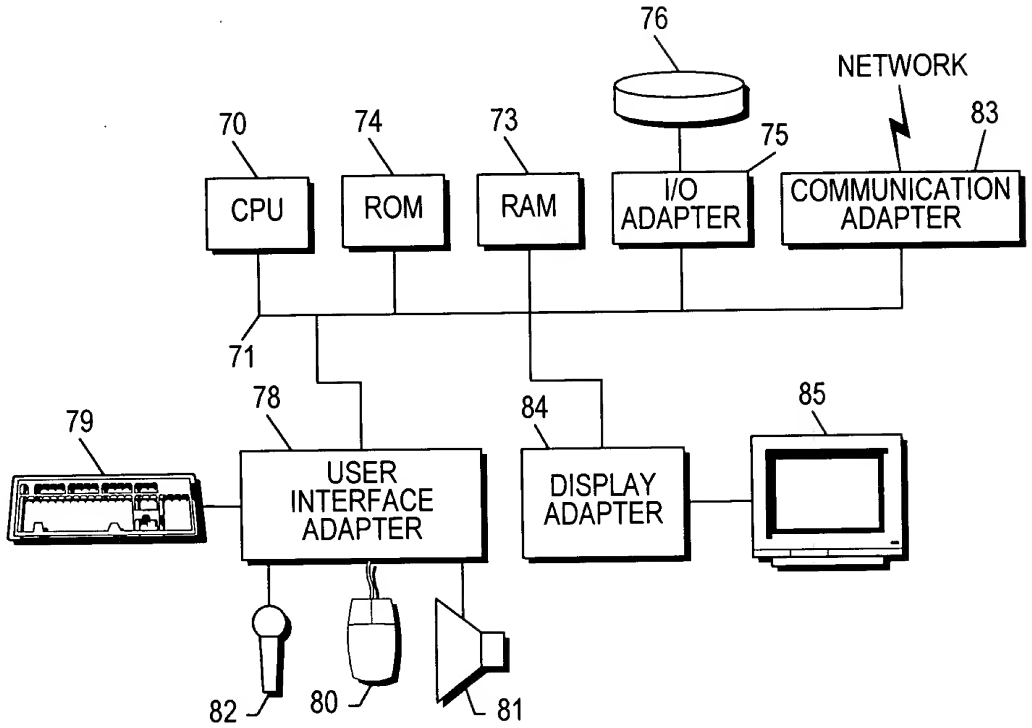

76
NETWORK
70
74
73
75
83
CPU
ROM
RAM
I/O ADAPTER
COMMUNICATION ADAPTER
71
79
78
84
85
USER INTERFACE ADAPTER
DISPLAY ADAPTER
82
80
81

Figure 2A

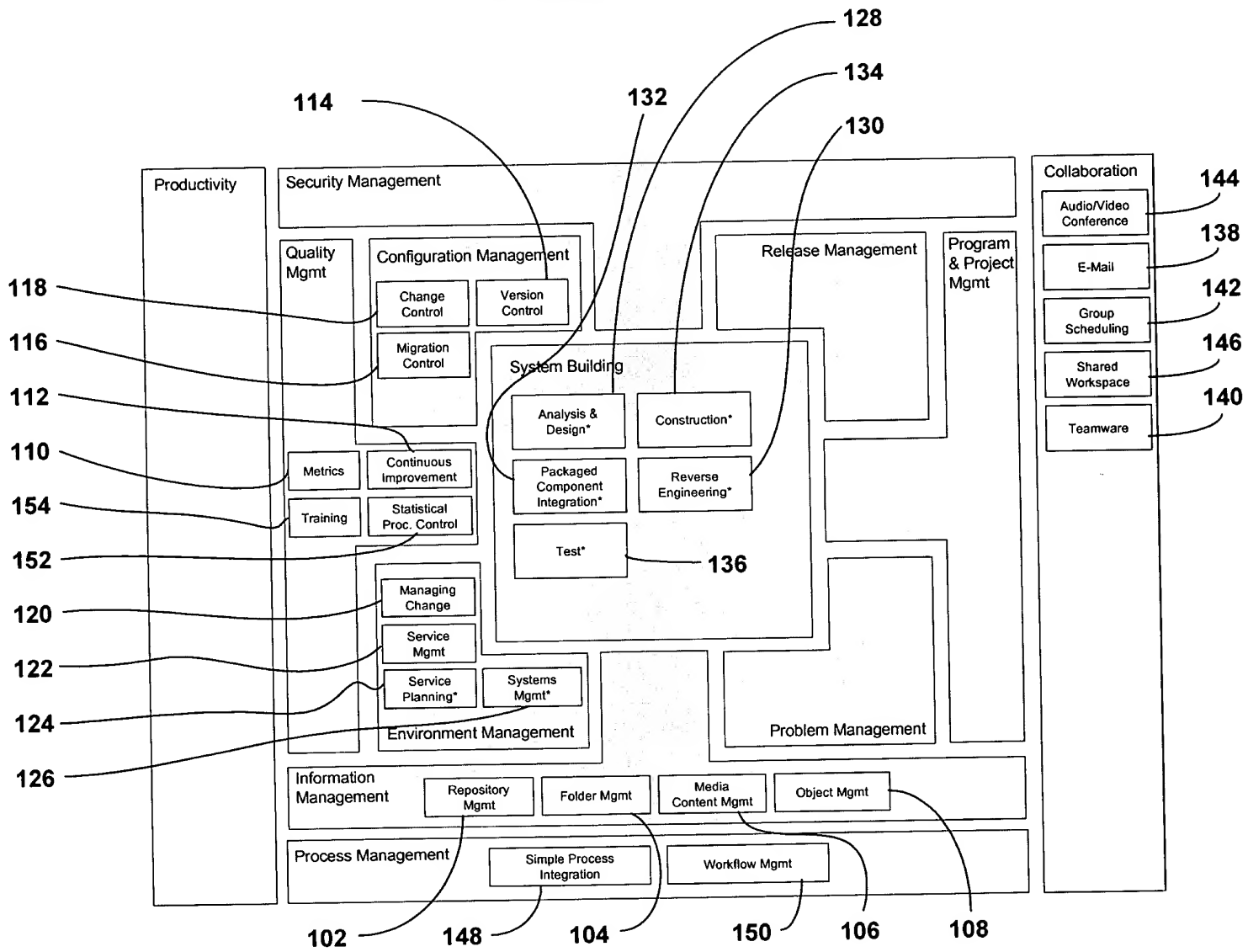

128
134
114
132
130
Productivity
Security Management
Collaboration
144
Audio/Video Conference
138
E-Mail
142
Group Scheduling
146
Shared Workspace
140
Teamware
Quality Mgmt
Configuration Management
Release Management
Program & Project Mgmt
118
Change Control
Version Control
116
Migration Control
System Building
112
Analysis & Design*
Construction*
110
Metrics
Continuous Improvement
Packaged Component Integration*
Reverse Engineering*
154
Training
Statistical Proc. Control
Test*
136
152
Managing Change
120
Service Mgmt
122
Service Planning*
Systems Mgmt*
124
Environment Management
Problem Management
126
Information Management
Repository Mgmt
Folder Mgmt
Media Content Mgmt
Object Mgmt
Process Management
Simple Process Integration
Workflow Mgmt
102
148
104
150
106
108

Figure 2B

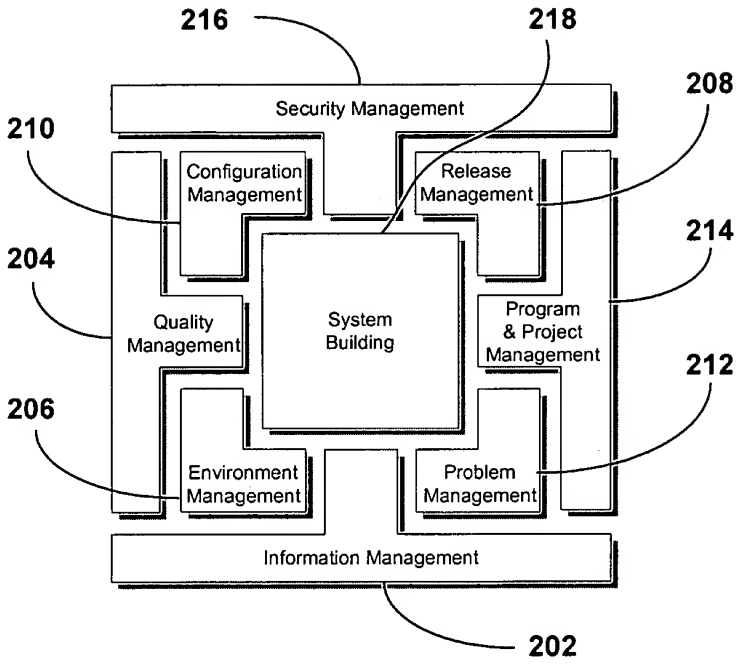

216
218
208
Security Management
210
Configuration Management
Release Management
214
204
Quality Management
System Building
Program & Project Management
212
206
Environment Management
Problem Management
Information Management
202

Figure 2C

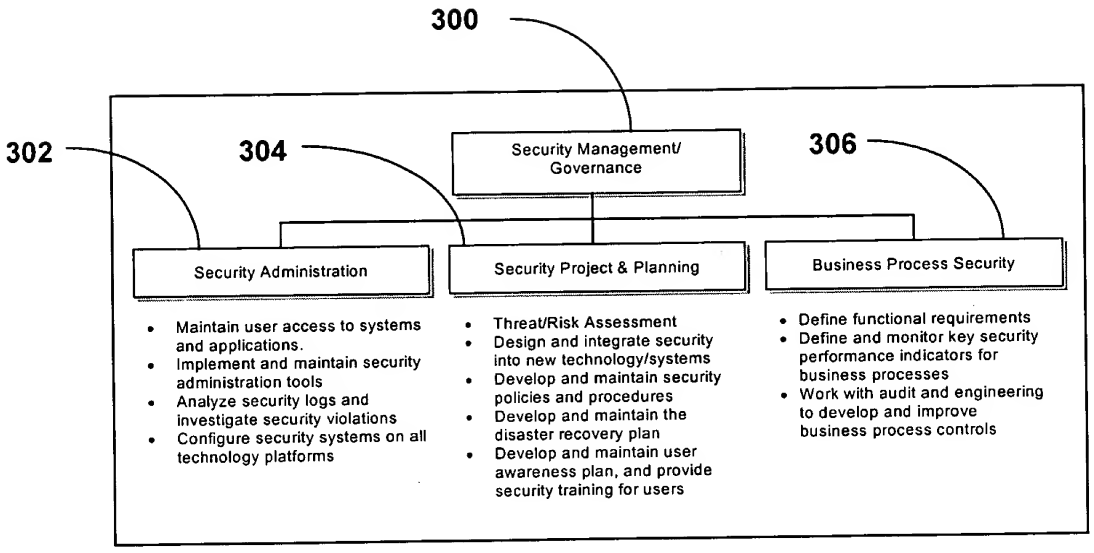

300
302
304
306
Security Management/ Governance
Security Administration
Security Project & Planning
Business Process Security
• Maintain user access to systems and applications.
• Implement and maintain security administration tools
• Analyze security logs and investigate security violations
• Configure security systems on all technology platforms
• Threat/Risk Assessment
• Design and integrate security into new technology/systems
• Develop and maintain security policies and procedures
• Develop and maintain the disaster recovery plan
• Develop and maintain user awareness plan, and provide security training for users
• Define functional requirements
• Define and monitor key security performance indicators for business processes
• Work with audit and engineering to develop and improve business process controls

Figure 3

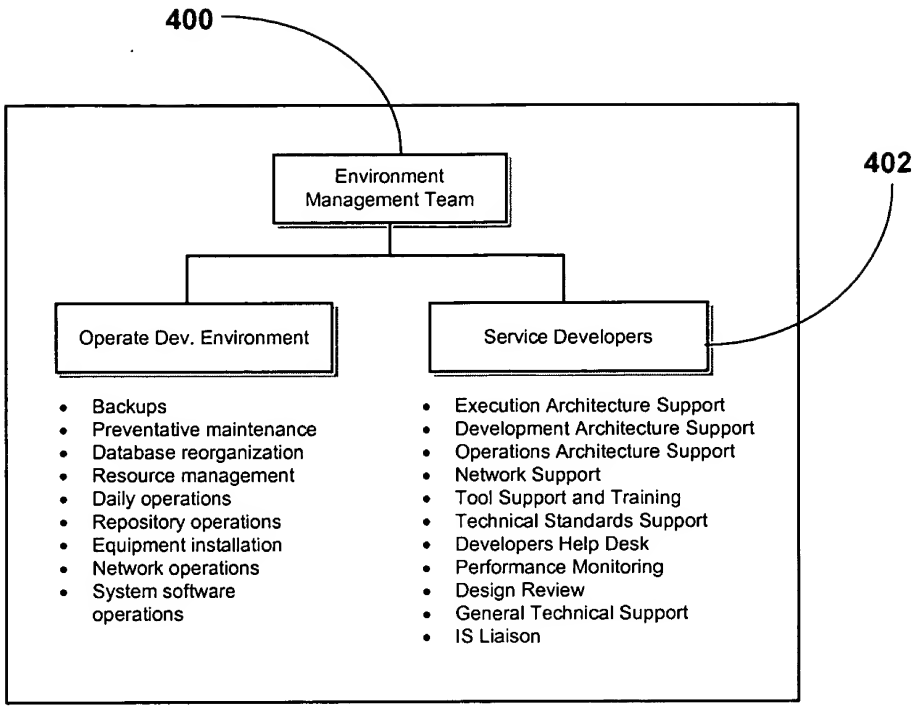

400
Environment Management Team
402
Operate Dev. Environment
Service Developers
Backups
Preventative maintenance
Database reorganization
Resource management
Daily operations
Repository operations
Equipment installation
Network operations
System software operations
Execution Architecture Support
Development Architecture Support
Operations Architecture Support
Network Support
Tool Support and Training
Technical Standards Support
Developers Help Desk
Performance Monitoring
Design Review
General Technical Support
IS Liaison

Figure 4

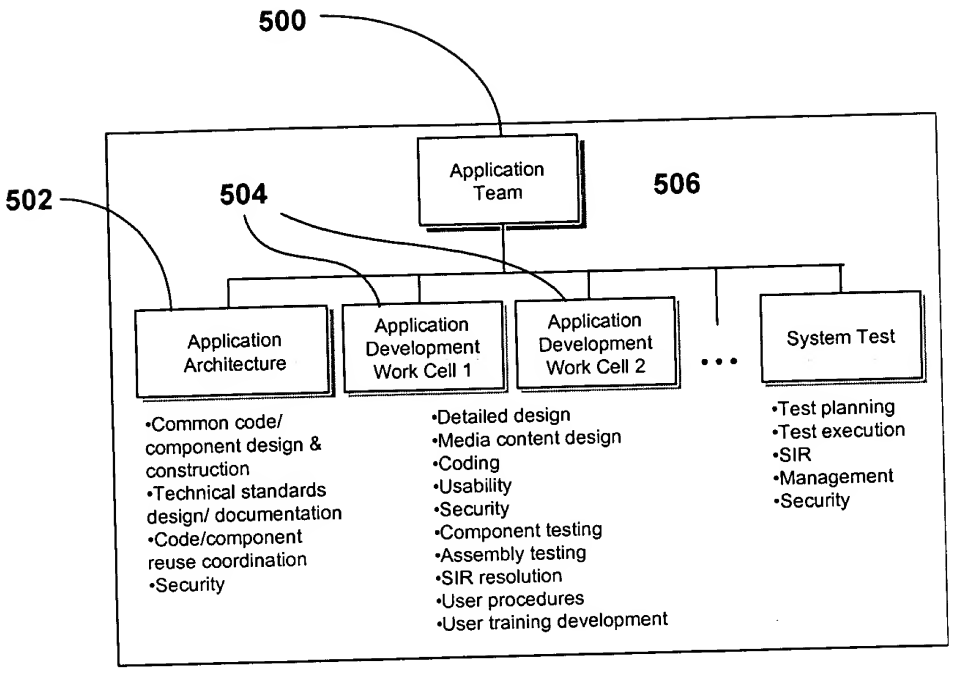

500
502
504
506
Application Team
Application Architecture
Application Development Work Cell 1
Application Development Work Cell 2
System Test
•Common code/ component design & construction
•Technical standards design/ documentation
•Code/component reuse coordination
•Security
•Detailed design
•Media content design
•Coding
•Usability
•Security
•Component testing
•Assembly testing
•SIR resolution
•User procedures
•User training development
•Test planning
•Test execution
•SIR
•Management
•Security

Figure 5

Doc No. 2005-0205-02

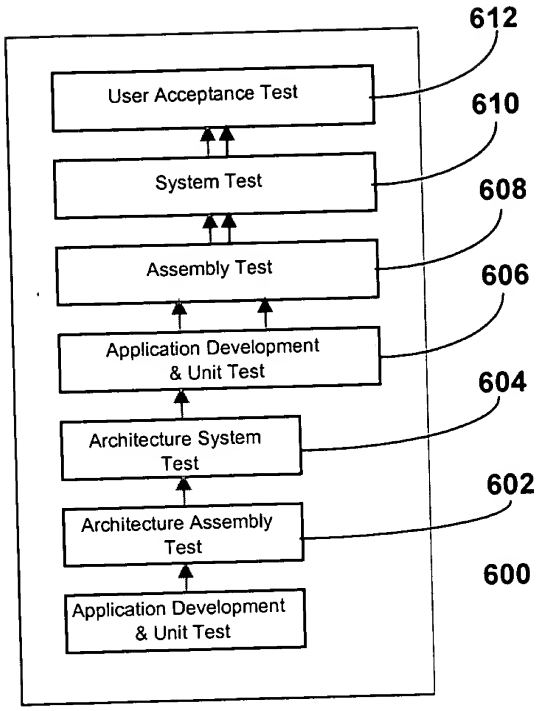


Figure 6

Doc No. 0503450.0

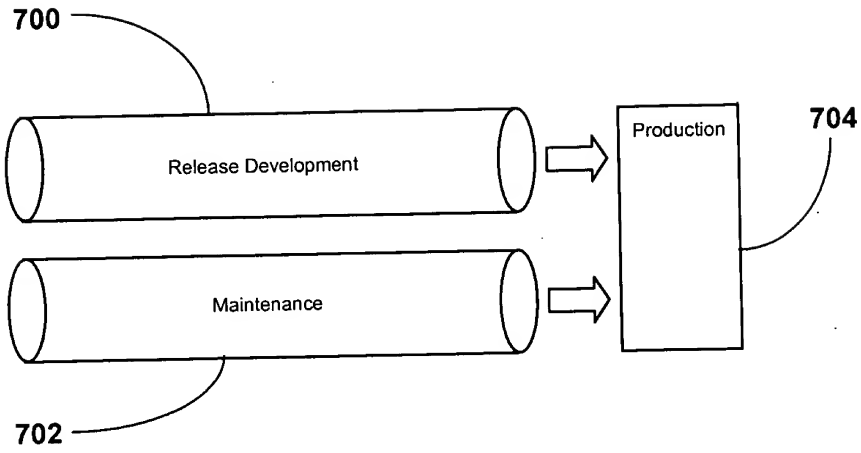


Figure 7

Doc 2004/0205694 A1 Oct. 14, 2004

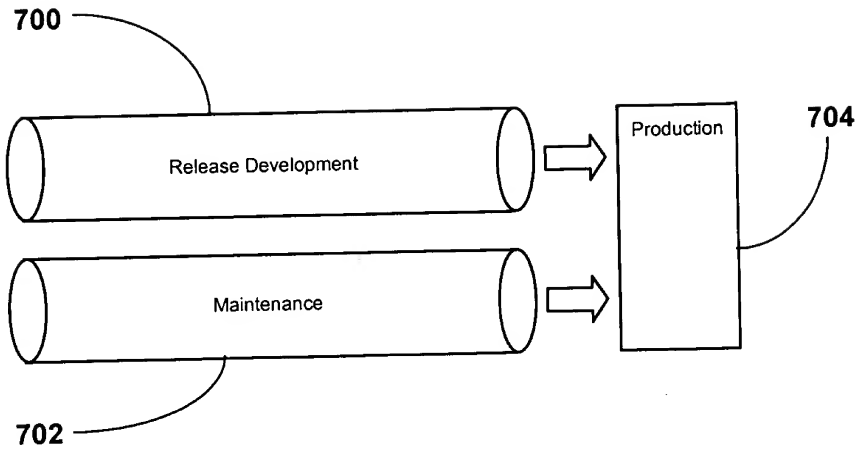


Figure 7

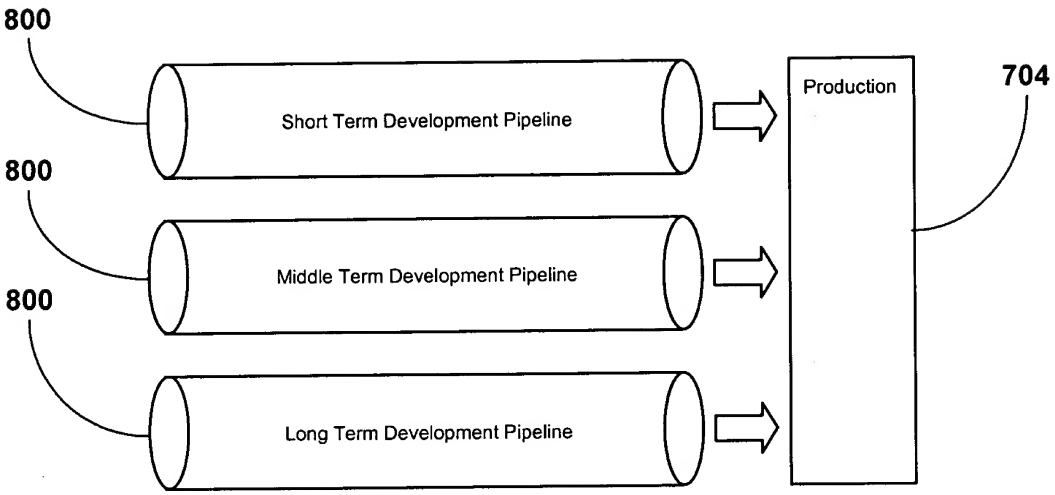

800
Short Term Development Pipeline
800
Middle Term Development Pipeline
800
Long Term Development Pipeline
Production
704

Figure 8

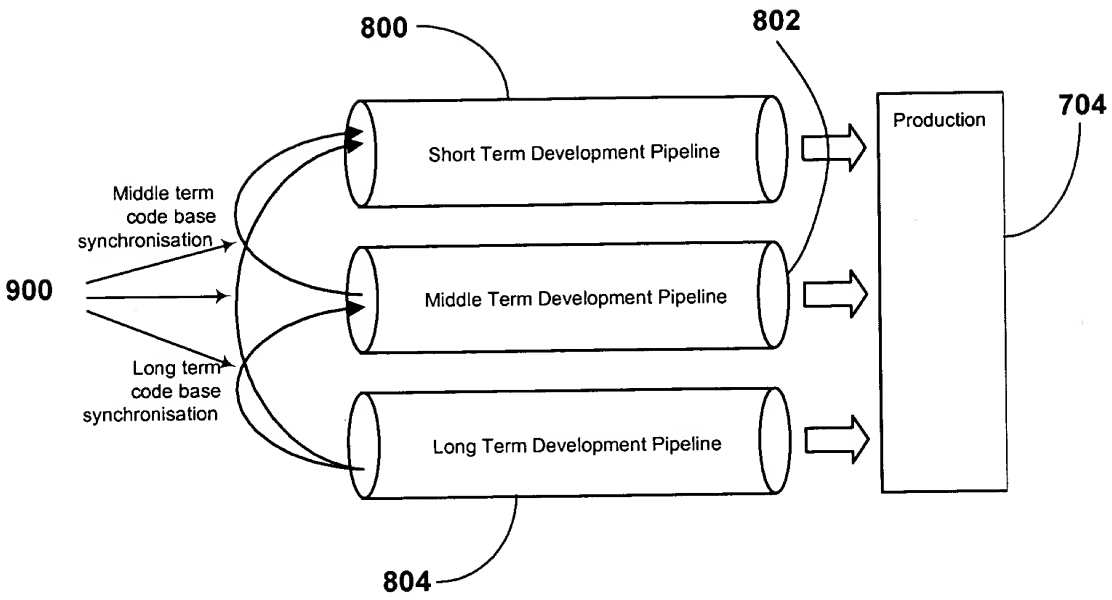

800
802
704
Short Term Development Pipeline
Middle term
code base
synchronisation
900
Middle Term Development Pipeline
Long term
code base
synchronisation
Long Term Development Pipeline
Production
804

Figure 9

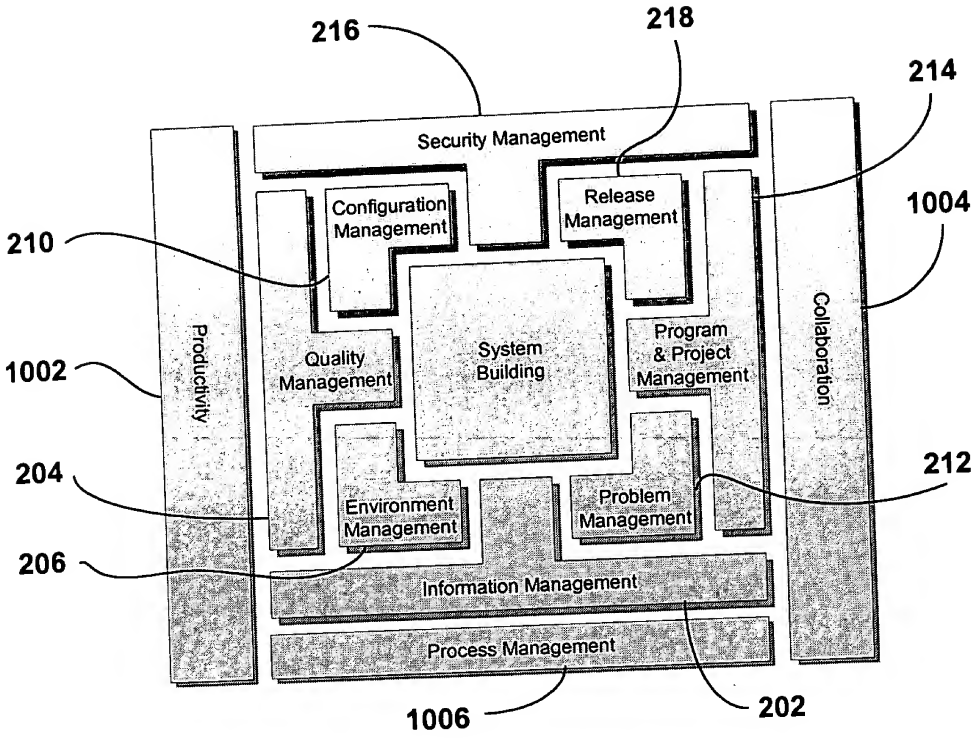

216
218
214
Security Management
Configuration Management
Release Management
1004
210
Productivity
Quality Management
System Building
Program & Project Management
Collaboration
1002
204
Environment Management
Problem Management
212
206
Information Management
Process Management
1006
202

Figure 10

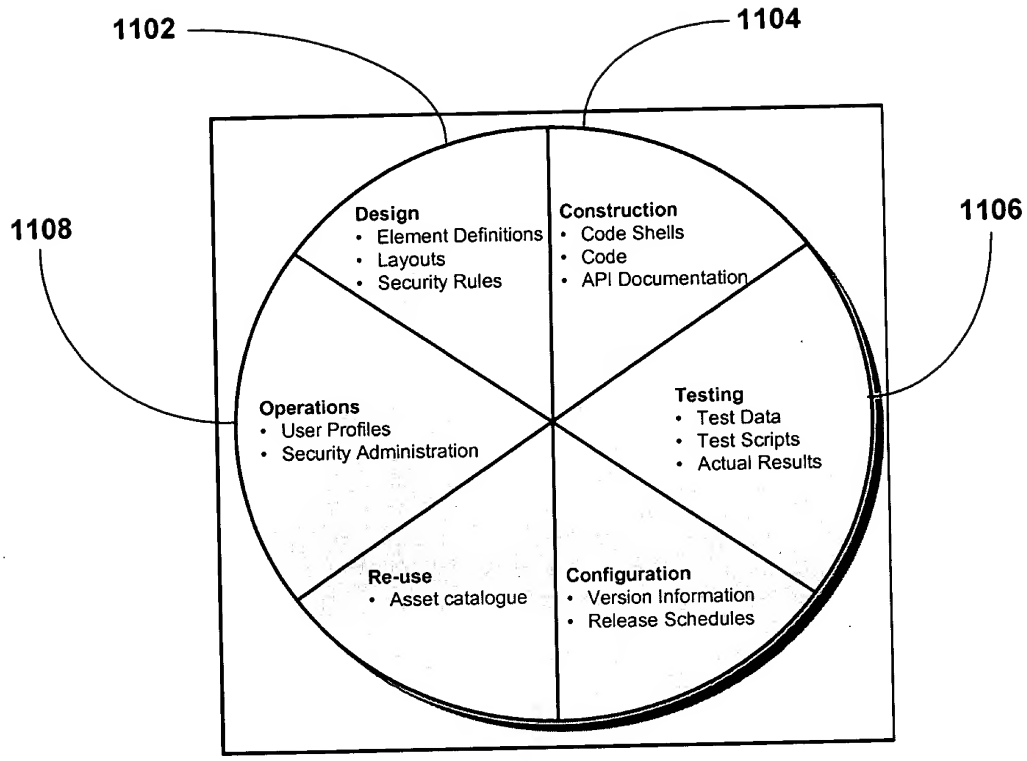

1102
1104
1106
1108
Design
• Element Definitions
• Layouts
• Security Rules
Construction
• Code Shells
• Code
• API Documentation
Testing
• Test Data
• Test Scripts
• Actual Results
Configuration
• Version Information
• Release Schedules
Re-use
• Asset catalogue
Operations
• User Profiles
• Security Administration

Figure 11

6,357,038 B1 Mar. 12, 2002

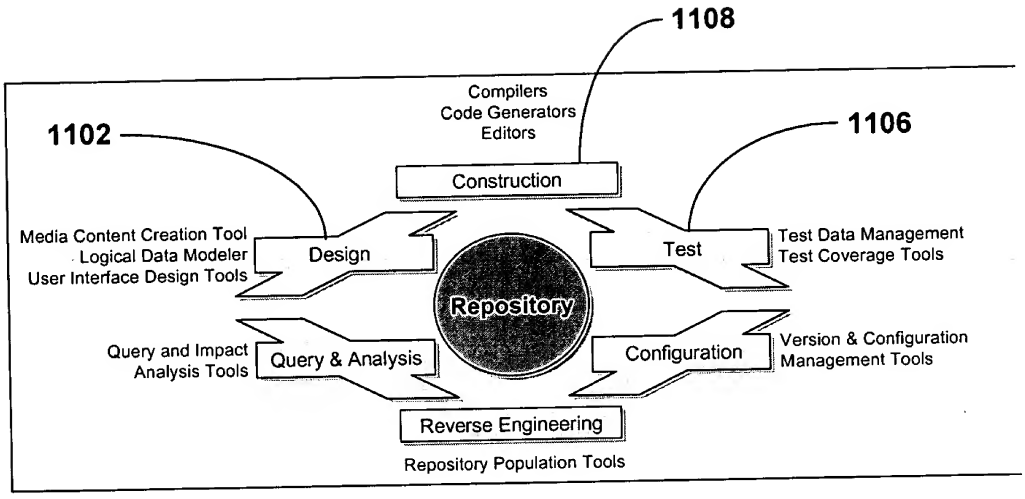
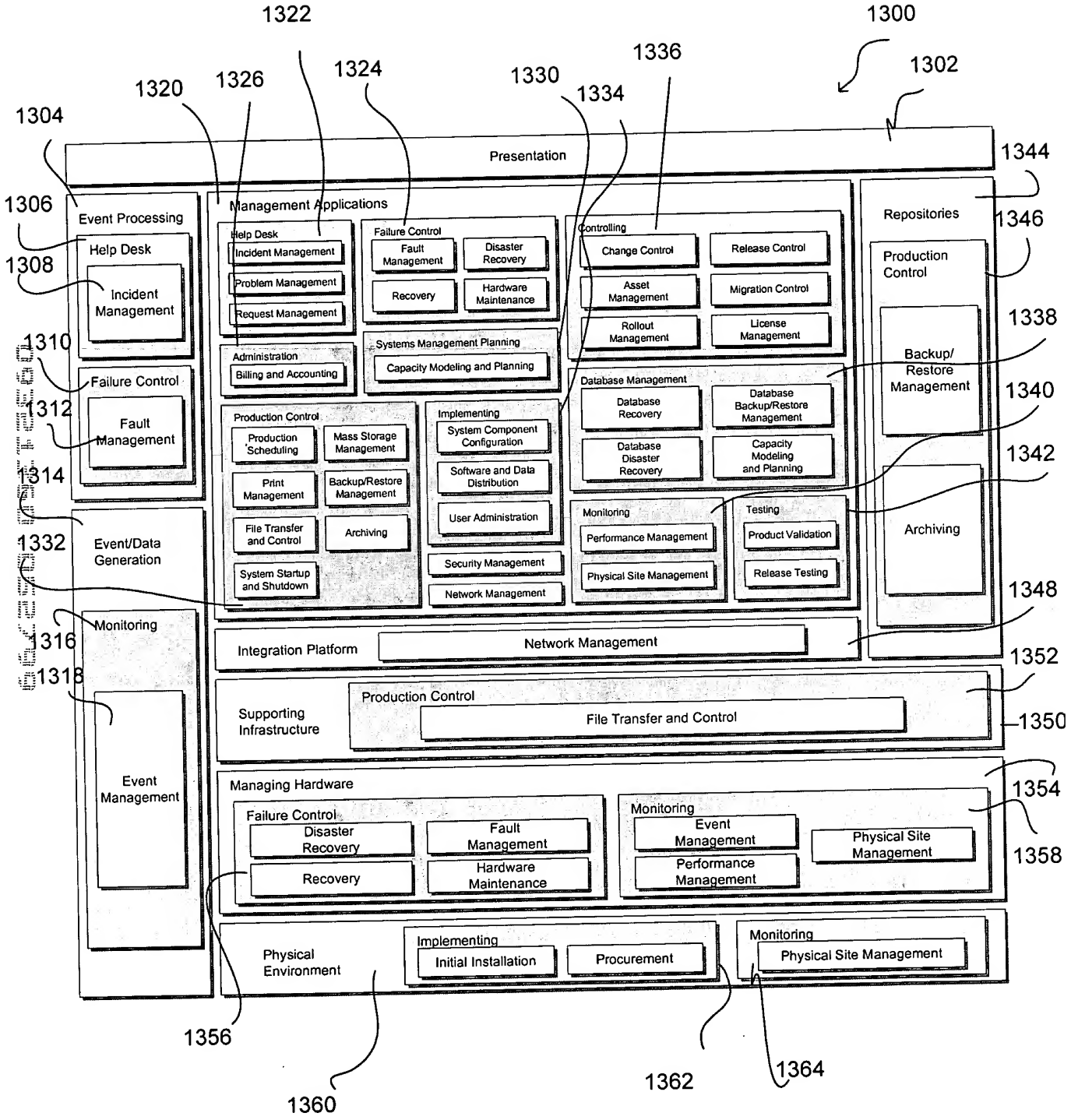


Figure 12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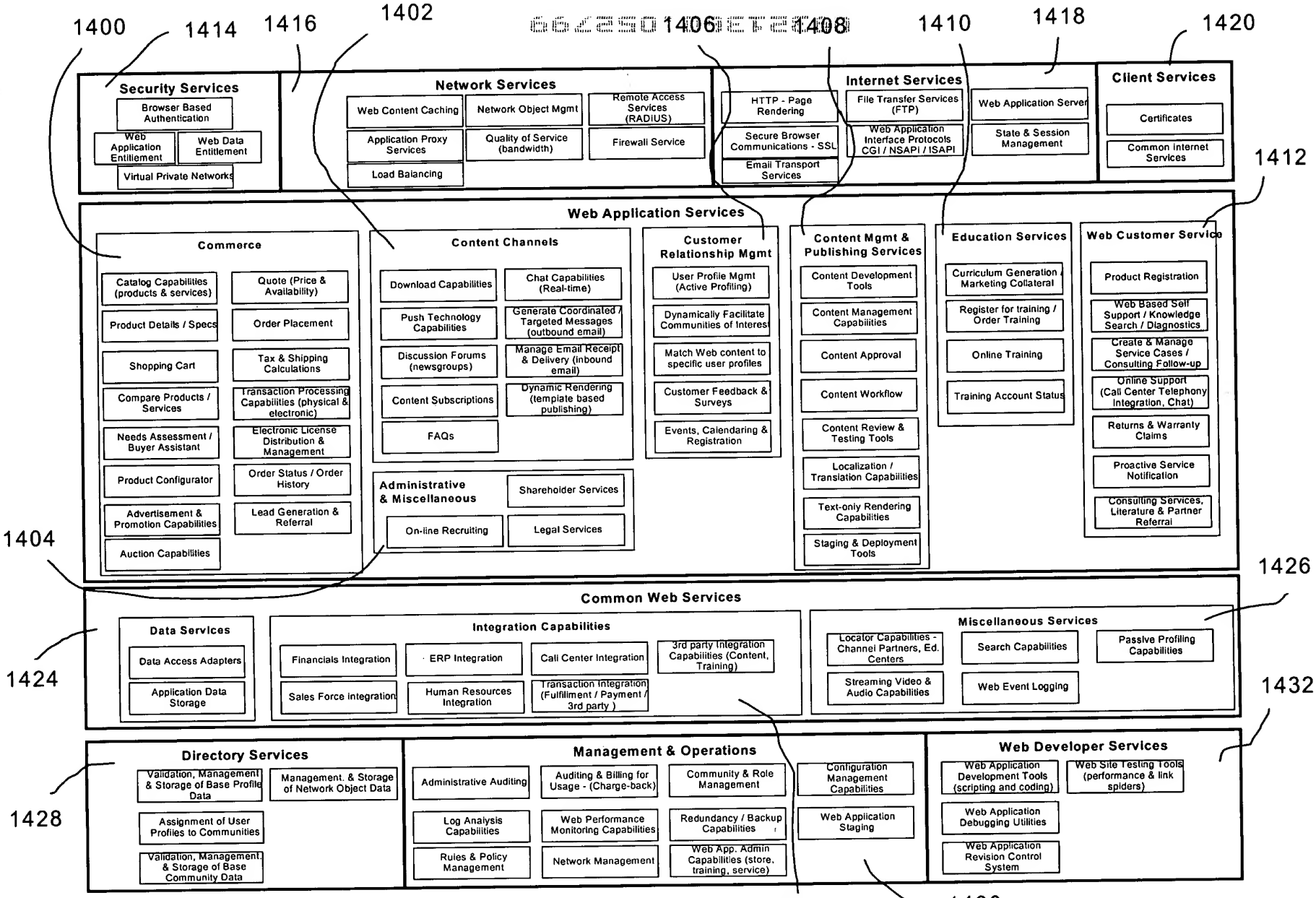
Presentation
Event Processing
Help Desk
Incident Management
Failure Control
Fault Management
Event/Data Generation
Monitoring
Event Management
Management Applications
Help Desk
Incident Management
Problem Management
Request Management
Failure Control
Fault Management
Disaster Recovery
Recovery
Hardware Maintenance
Administration
Billing and Accounting
Systems Management Planning
Capacity Modeling and Planning
Production Control
Production Scheduling
Mass Storage Management
Print Management
Backup/Restore Management
File Transfer and Control
Archiving
System Startup and Shutdown
Implementing
System Component Configuration
Software and Data Distribution
User Administration
Security Management
Network Management
Controlling
Change Control
Release Control
Asset Management
Migration Control
Rollout Management
License Management
Database Management
Database Recovery
Database Backup/Restore Management
Database Disaster Recovery
Capacity Modeling and Planning
Monitoring
Performance Management
Physical Site Management
Testing
Product Validation
Release Testing
Repositories
Production Control
Backup/ Restore Management
Archiving
Integration Platform
Network Management
Supporting Infrastructure
Production Control
File Transfer and Control
Managing Hardware
Failure Control
Disaster Recovery
Fault Management
Recovery
Hardware Maintenance
Monitoring
Event Management
Physical Site Management
Performance Management
Physical Environment
Implementing
Initial Installation
Procurement
Monitoring
Physical Site Management

Figure 13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Security Services
Browser Based Authentication
Web Application Entitlement
Web Data Entitlement
Virtual Private Networks
Network Services
Web Content Caching
Network Object Mgmt
Remote Access Services (RADIUS)
Application Proxy Services
Quality of Service (bandwidth)
Firewall Service
Load Balancing
Internet Services
HTTP - Page Rendering
File Transfer Services (FTP)
Web Application Server
Secure Browser Communications - SSL
Web Application Interface Protocols CGI / NSAPI / ISAPI
State & Session Management
Email Transport Services
Client Services
Certificates
Common Internet Services
Web Application Services
Commerce
Catalog Capabilities (products & services)
Quote (Price & Availability)
Product Details / Specs
Order Placement
Shopping Cart
Tax & Shipping Calculations
Compare Products / Services
Transaction Processing Capabilities (physical & electronic)
Needs Assessment / Buyer Assistant
Electronic License Distribution & Management
Product Configurator
Order Status / Order History
Advertisement & Promotion Capabilities
Lead Generation & Referral
Auction Capabilities
Content Channels
Download Capabilities
Chat Capabilities (Real-time)
Push Technology Capabilities
Generate Coordinated / Targeted Messages (outbound email)
Discussion Forums (newsgroups)
Manage Email Receipt & Delivery (inbound email)
Content Subscriptions
Dynamic Rendering (template based publishing)
FAQs
Administrative & Miscellaneous
Shareholder Services
On-line Recruiting
Legal Services
Customer Relationship Mgmt
User Profile Mgmt (Active Profiling)
Dynamically Facilitate Communities of Interest
Match Web content to specific user profiles
Customer Feedback & Surveys
Events, Calendaring & Registration
Content Mgmt & Publishing Services
Content Development Tools
Content Management Capabilities
Content Approval
Content Workflow
Content Review & Testing Tools
Localization / Translation Capabilities
Text-only Rendering Capabilities
Staging & Deployment Tools
Education Services
Curriculum Generation / Marketing Collateral
Register for training / Order Training
Online Training
Training Account Status
Web Customer Service
Product Registration
Web Based Self Support / Knowledge Search / Diagnostics
Create & Manage Service Cases / Consulting Follow-up
Online Support (Call Center Telephony Integration, Chat)
Returns & Warranty Claims
Proactive Service Notification
Consulting Services, Literature & Partner Referral
Common Web Services
Data Services
Data Access Adapters
Application Data Storage
Integration Capabilities
Financials Integration
ERP Integration
Call Center Integration
3rd party Integration Capabilities (Content, Training)
Sales Force integration
Human Resources Integration
Transaction Integration (Fulfillment / Payment / 3rd party)
Miscellaneous Services
Locator Capabilities - Channel Partners, Ed. Centers
Search Capabilities
Passive Profiling Capabilities
Streaming Video & Audio Capabilities
Web Event Logging
Directory Services
Validation, Management & Storage of Base Profile Data
Management. & Storage of Network Object Data
Assignment of User Profiles to Communities
Validation, Management & Storage of Base Community Data
Management & Operations
Administrative Auditing
Auditing & Billing for Usage - (Charge-back)
Community & Role Management
Configuration Management Capabilities
Log Analysis Capabilities
Web Performance Monitoring Capabilities
Redundancy / Backup Capabilities
Web Application Staging
Rules & Policy Management
Network Management
Web App. Admin Capabilities (store, training, service)
Web Developer Services
Web Application Development Tools (scripting and coding)
Web Site Testing Tools (performance & link spiders)
Web Application Debugging Utilities
Web Application Revision Control System

Figure 14

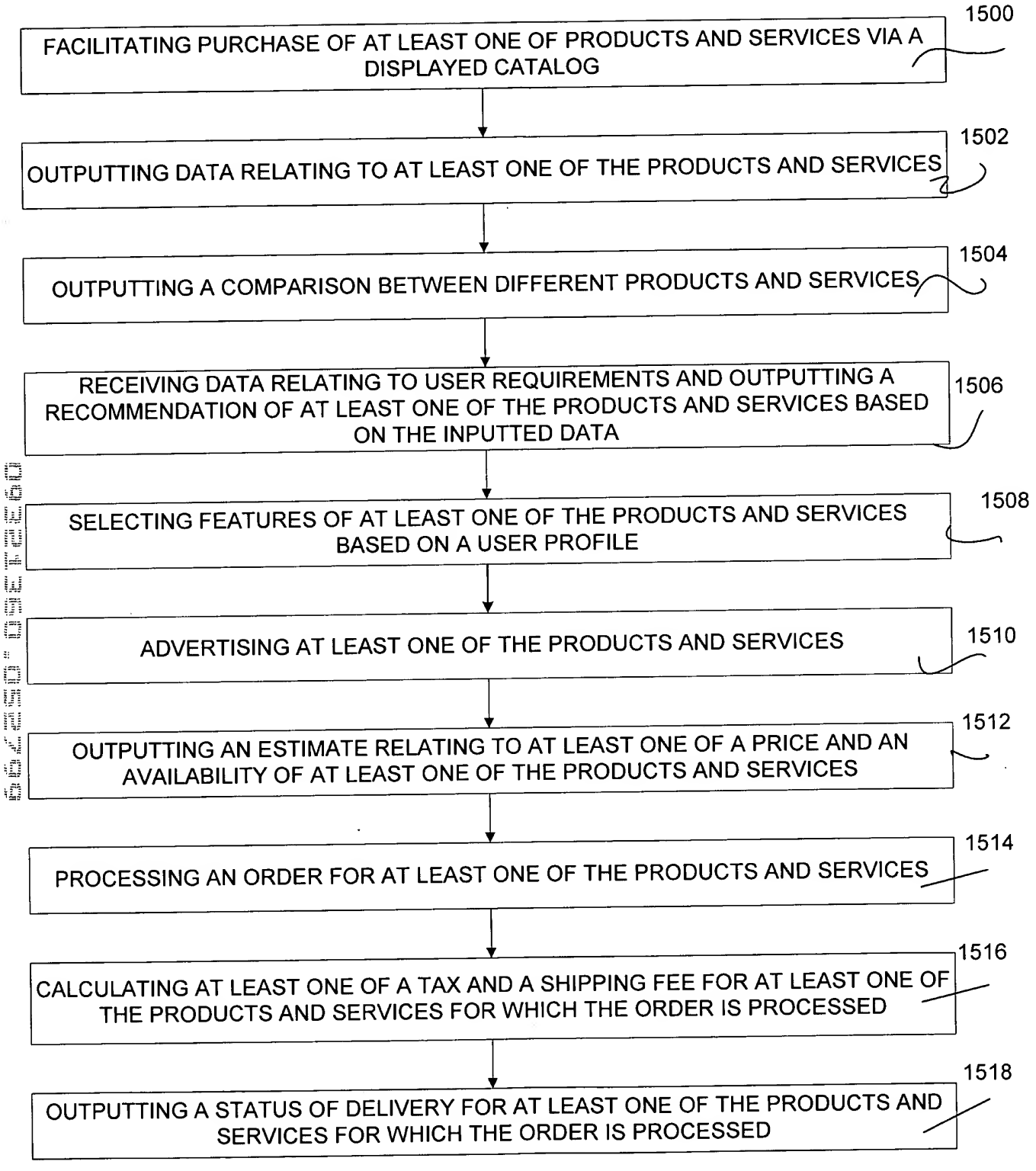

FACILITATING PURCHASE OF AT LEAST ONE OF PRODUCTS AND SERVICES VIA A DISPLAYED CATALOG
1500
OUTPUTTING DATA RELATING TO AT LEAST ONE OF THE PRODUCTS AND SERVICES
1502
OUTPUTTING A COMPARISON BETWEEN DIFFERENT PRODUCTS AND SERVICES
1504
RECEIVING DATA RELATING TO USER REQUIREMENTS AND OUTPUTTING A RECOMMENDATION OF AT LEAST ONE OF THE PRODUCTS AND SERVICES BASED ON THE INPUTTED DATA
1506
SELECTING FEATURES OF AT LEAST ONE OF THE PRODUCTS AND SERVICES BASED ON A USER PROFILE
1508
ADVERTISING AT LEAST ONE OF THE PRODUCTS AND SERVICES
1510
OUTPUTTING AN ESTIMATE RELATING TO AT LEAST ONE OF A PRICE AND AN AVAILABILITY OF AT LEAST ONE OF THE PRODUCTS AND SERVICES
1512
PROCESSING AN ORDER FOR AT LEAST ONE OF THE PRODUCTS AND SERVICES
1514
CALCULATING AT LEAST ONE OF A TAX AND A SHIPPING FEE FOR AT LEAST ONE OF THE PRODUCTS AND SERVICES FOR WHICH THE ORDER IS PROCESSED
1516
OUTPUTTING A STATUS OF DELIVERY FOR AT LEAST ONE OF THE PRODUCTS AND SERVICES FOR WHICH THE ORDER IS PROCESSED
1518
1400

Figure 15

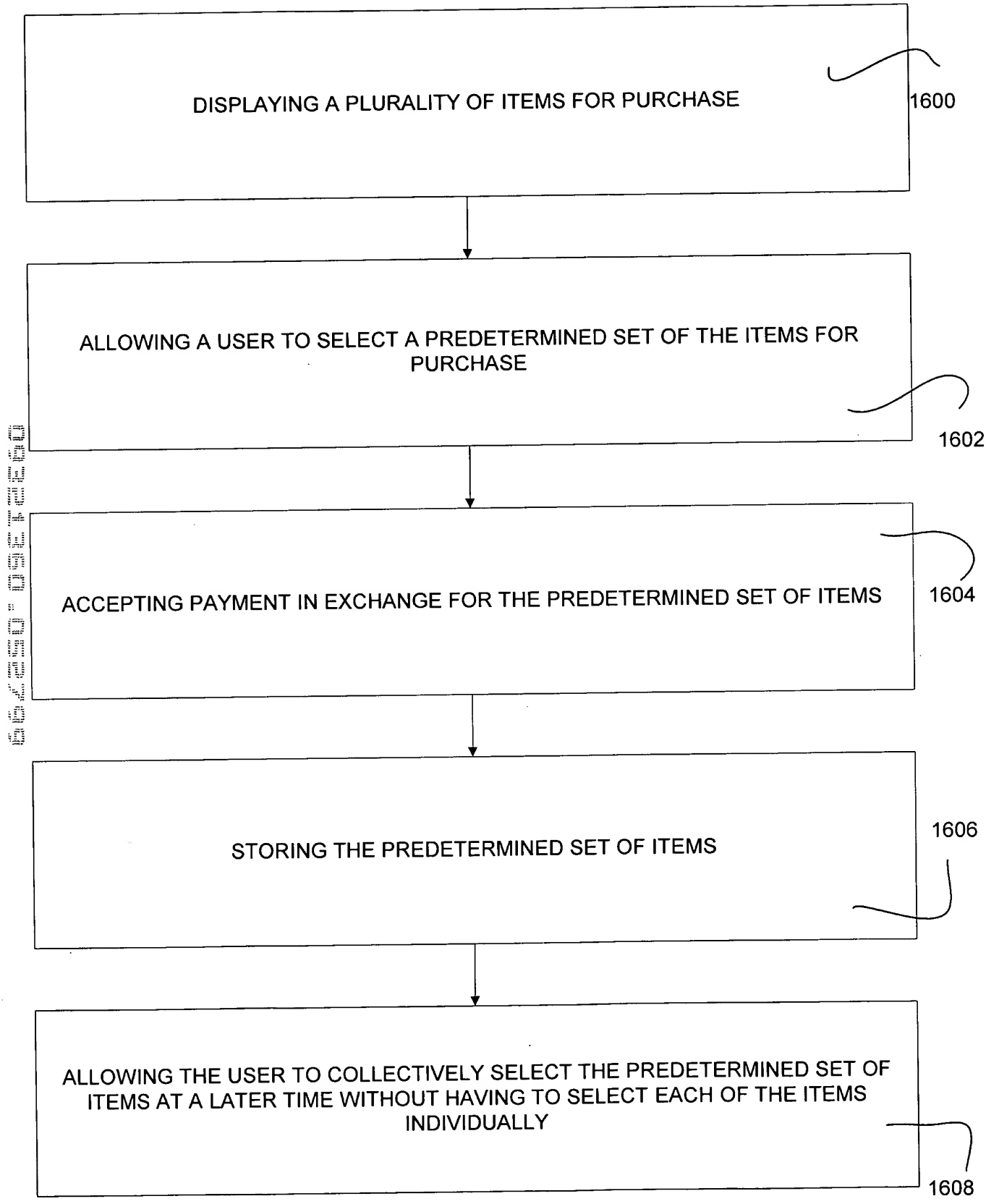

DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE
1600
ALLOWING A USER TO SELECT A PREDETERMINED SET OF THE ITEMS FOR PURCHASE
1602
ACCEPTING PAYMENT IN EXCHANGE FOR THE PREDETERMINED SET OF ITEMS
1604
STORING THE PREDETERMINED SET OF ITEMS
1606
ALLOWING THE USER TO COLLECTIVELY SELECT THE PREDETERMINED SET OF ITEMS AT A LATER TIME WITHOUT HAVING TO SELECT EACH OF THE ITEMS INDIVIDUALLY
1608

Figure 16

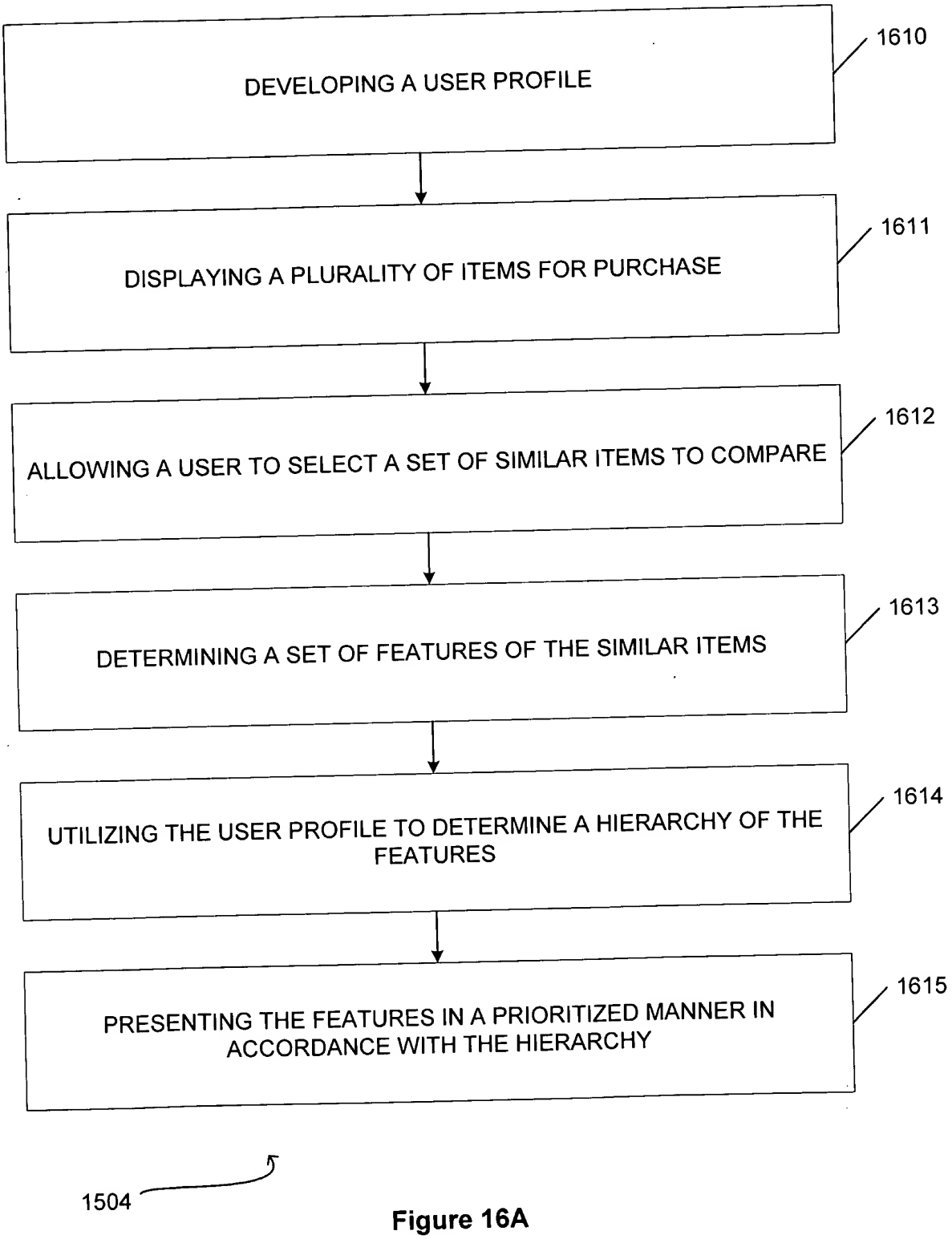

DEVELOPING A USER PROFILE
1610
DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE
1611
ALLOWING A USER TO SELECT A SET OF SIMILAR ITEMS TO COMPARE
1612
DETERMINING A SET OF FEATURES OF THE SIMILAR ITEMS
1613
UTILIZING THE USER PROFILE TO DETERMINE A HIERARCHY OF THE FEATURES
1614
PRESENTING THE FEATURES IN A PRIORITIZED MANNER IN ACCORDANCE WITH THE HIERARCHY
1615
1504

Figure 16A

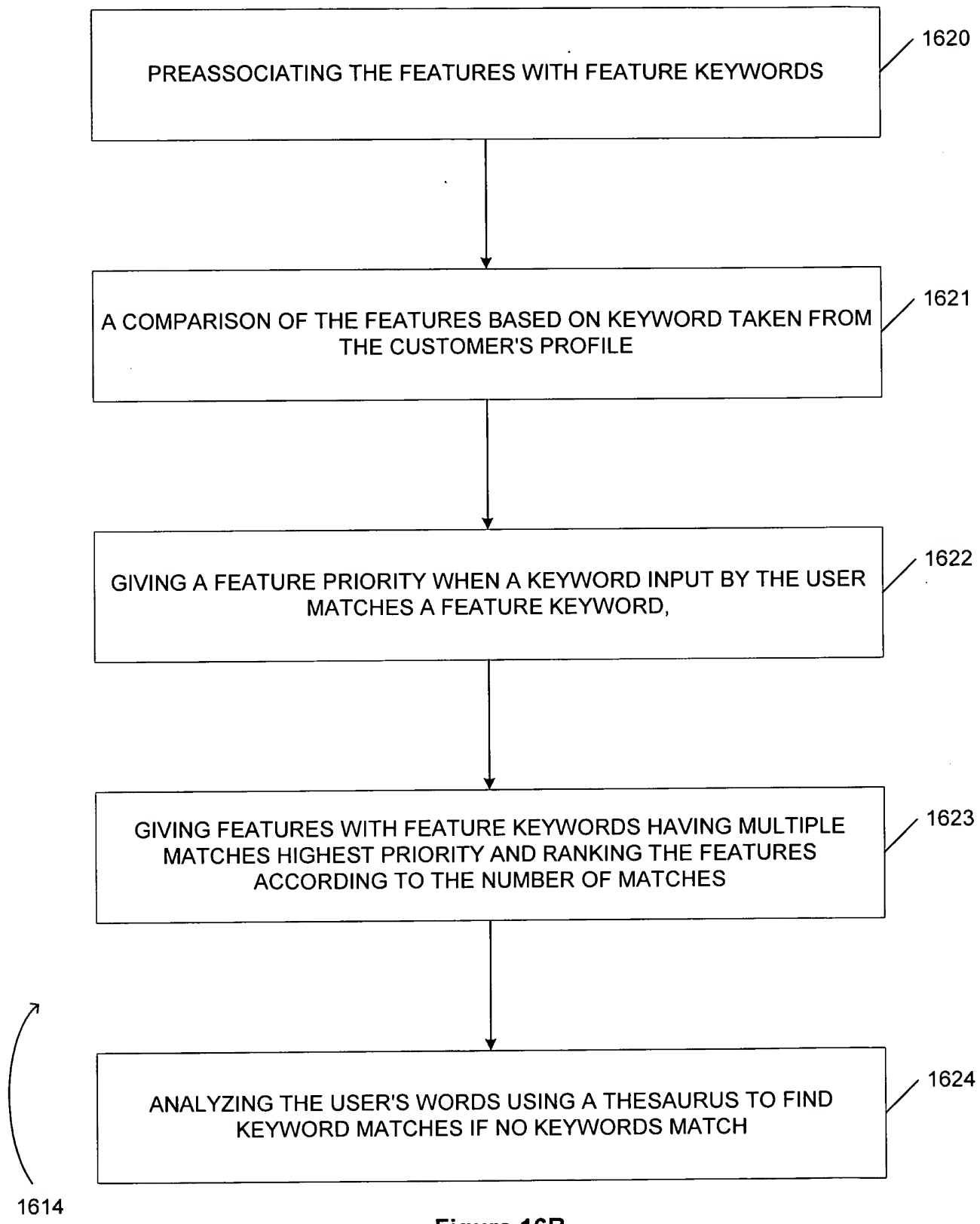

PREASSOCIATING THE FEATURES WITH FEATURE KEYWORDS
1620
A COMPARISON OF THE FEATURES BASED ON KEYWORD TAKEN FROM THE CUSTOMER'S PROFILE
1621
GIVING A FEATURE PRIORITY WHEN A KEYWORD INPUT BY THE USER MATCHES A FEATURE KEYWORD,
1622
GIVING FEATURES WITH FEATURE KEYWORDS HAVING MULTIPLE MATCHES HIGHEST PRIORITY AND RANKING THE FEATURES ACCORDING TO THE NUMBER OF MATCHES
1623
ANALYZING THE USER'S WORDS USING A THESAURUS TO FIND KEYWORD MATCHES IF NO KEYWORDS MATCH
1624
1614

Figure 16B

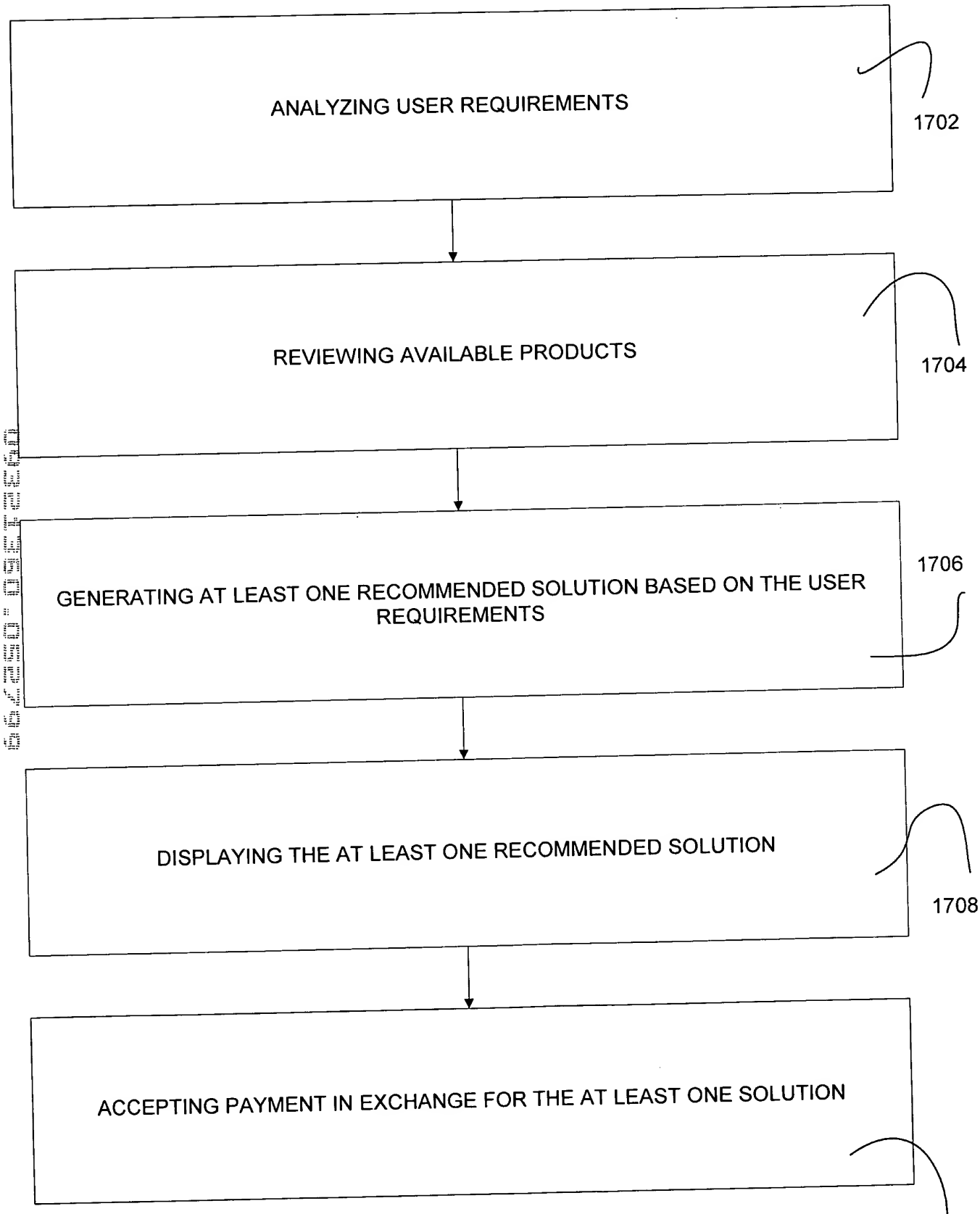

ANALYZING USER REQUIREMENTS
1702
REVIEWING AVAILABLE PRODUCTS
1704
GENERATING AT LEAST ONE RECOMMENDED SOLUTION BASED ON THE USER REQUIREMENTS
1706
DISPLAYING THE AT LEAST ONE RECOMMENDED SOLUTION
1708
ACCEPTING PAYMENT IN EXCHANGE FOR THE AT LEAST ONE SOLUTION
1710

Figure 17

6,236,990 B1 May 22, 2001

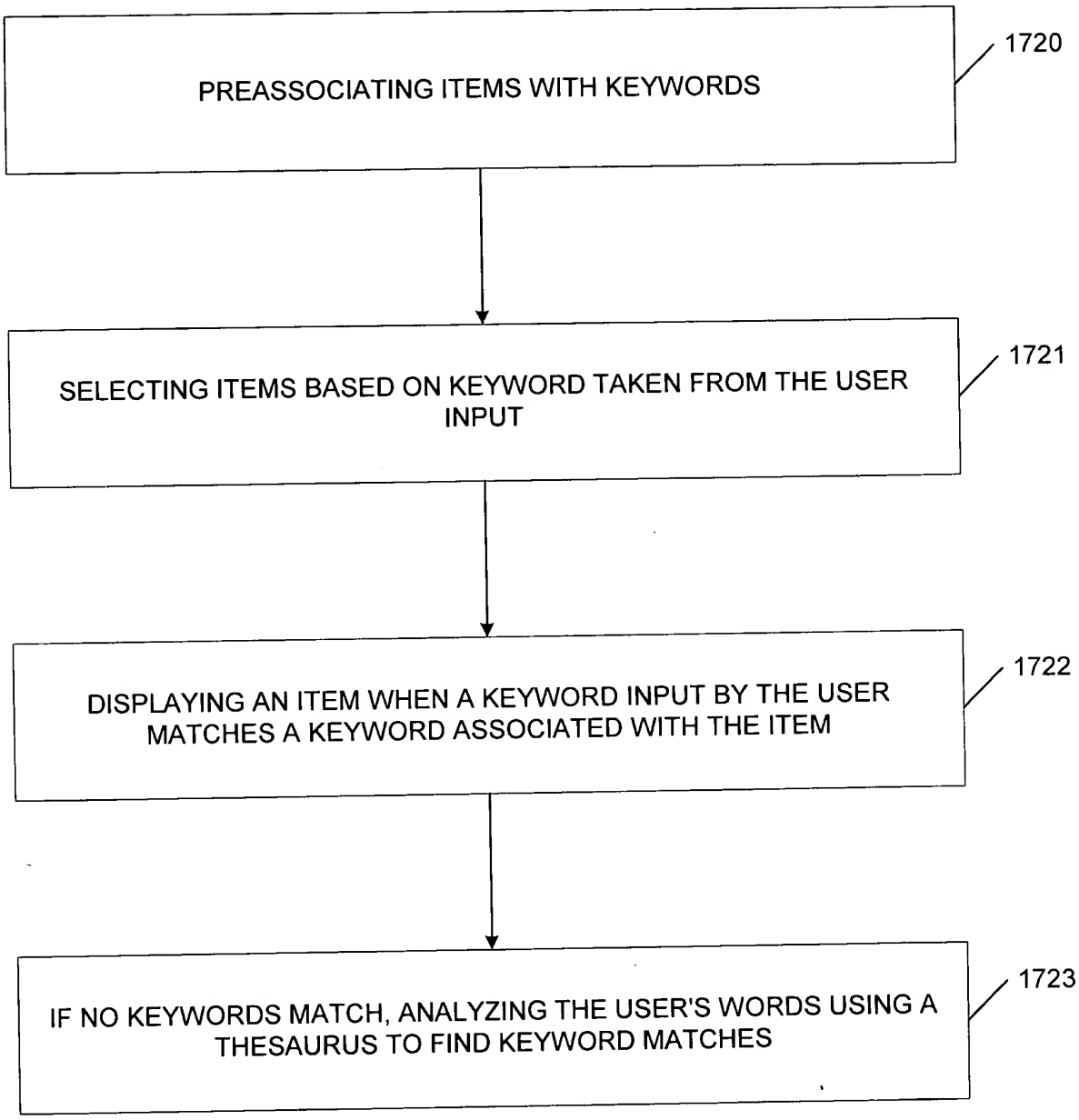


Figure 17A

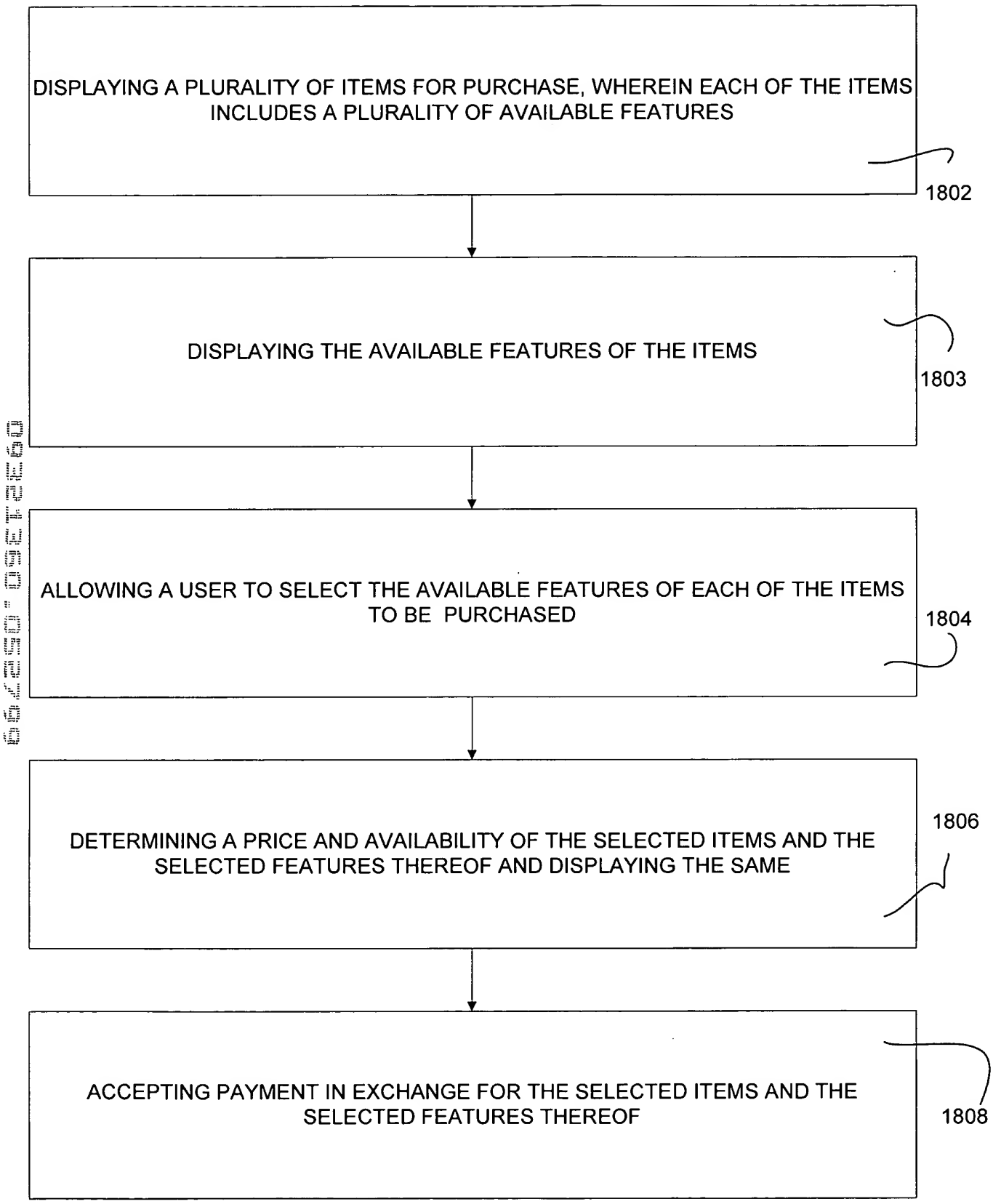

DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE, WHEREIN EACH OF THE ITEMS INCLUDES A PLURALITY OF AVAILABLE FEATURES
1802
DISPLAYING THE AVAILABLE FEATURES OF THE ITEMS
1803
ALLOWING A USER TO SELECT THE AVAILABLE FEATURES OF EACH OF THE ITEMS TO BE PURCHASED
1804
DETERMINING A PRICE AND AVAILABILITY OF THE SELECTED ITEMS AND THE SELECTED FEATURES THEREOF AND DISPLAYING THE SAME
1806
ACCEPTING PAYMENT IN EXCHANGE FOR THE SELECTED ITEMS AND THE SELECTED FEATURES THEREOF
1808

Figure 18

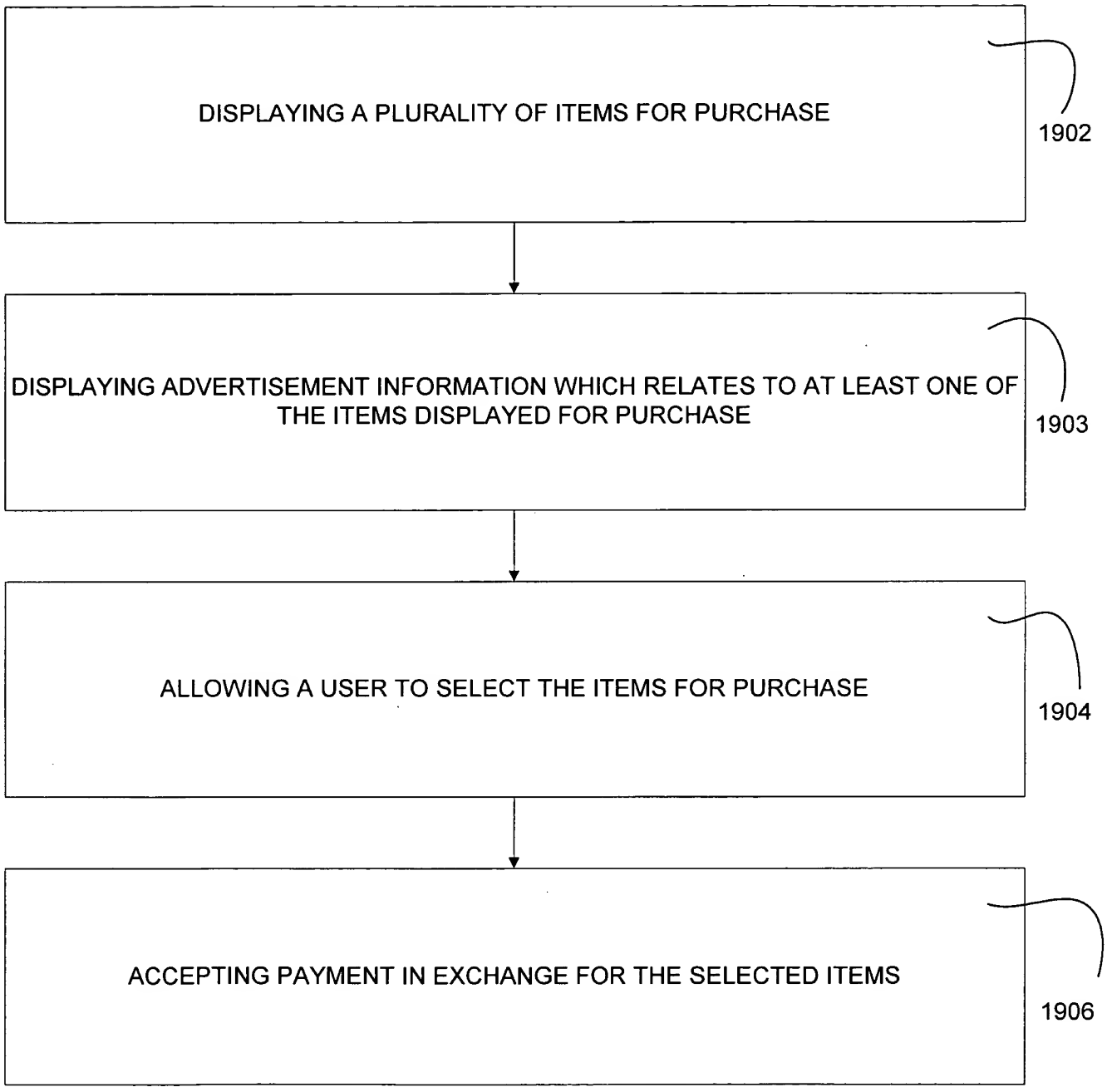

DISPLAYING A PLURALITY OF ITEMS FOR PURCHASE
1902
DISPLAYING ADVERTISEMENT INFORMATION WHICH RELATES TO AT LEAST ONE OF THE ITEMS DISPLAYED FOR PURCHASE
1903
ALLOWING A USER TO SELECT THE ITEMS FOR PURCHASE
1904
ACCEPTING PAYMENT IN EXCHANGE FOR THE SELECTED ITEMS
1906

Figure 19

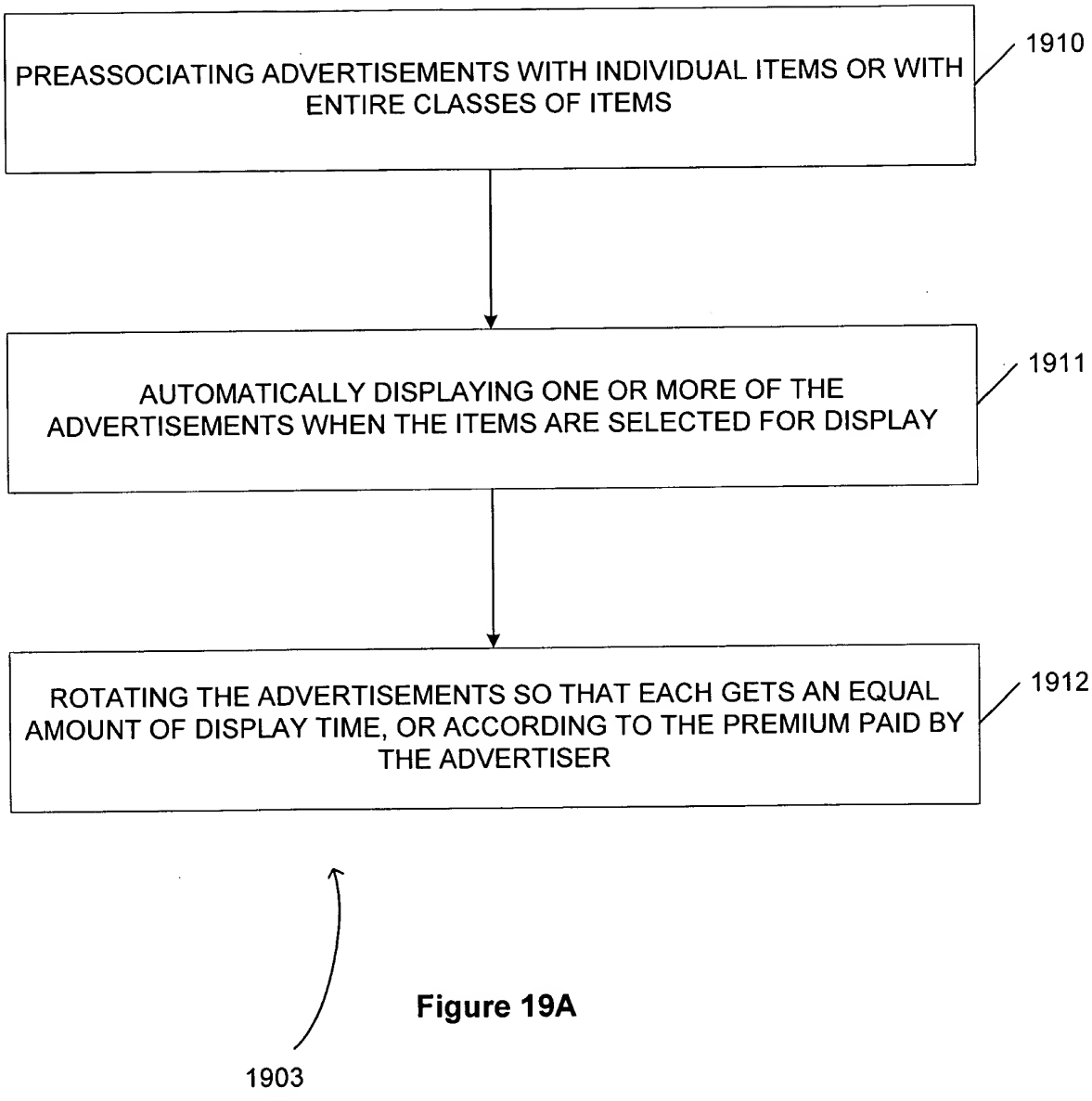

PREASSOCIATING ADVERTISEMENTS WITH INDIVIDUAL ITEMS OR WITH ENTIRE CLASSES OF ITEMS
1910
AUTOMATICALLY DISPLAYING ONE OR MORE OF THE ADVERTISEMENTS WHEN THE ITEMS ARE SELECTED FOR DISPLAY
1911
ROTATING THE ADVERTISEMENTS SO THAT EACH GETS AN EQUAL AMOUNT OF DISPLAY TIME, OR ACCORDING TO THE PREMIUM PAID BY THE ADVERTISER
1912
1903

Figure 19A

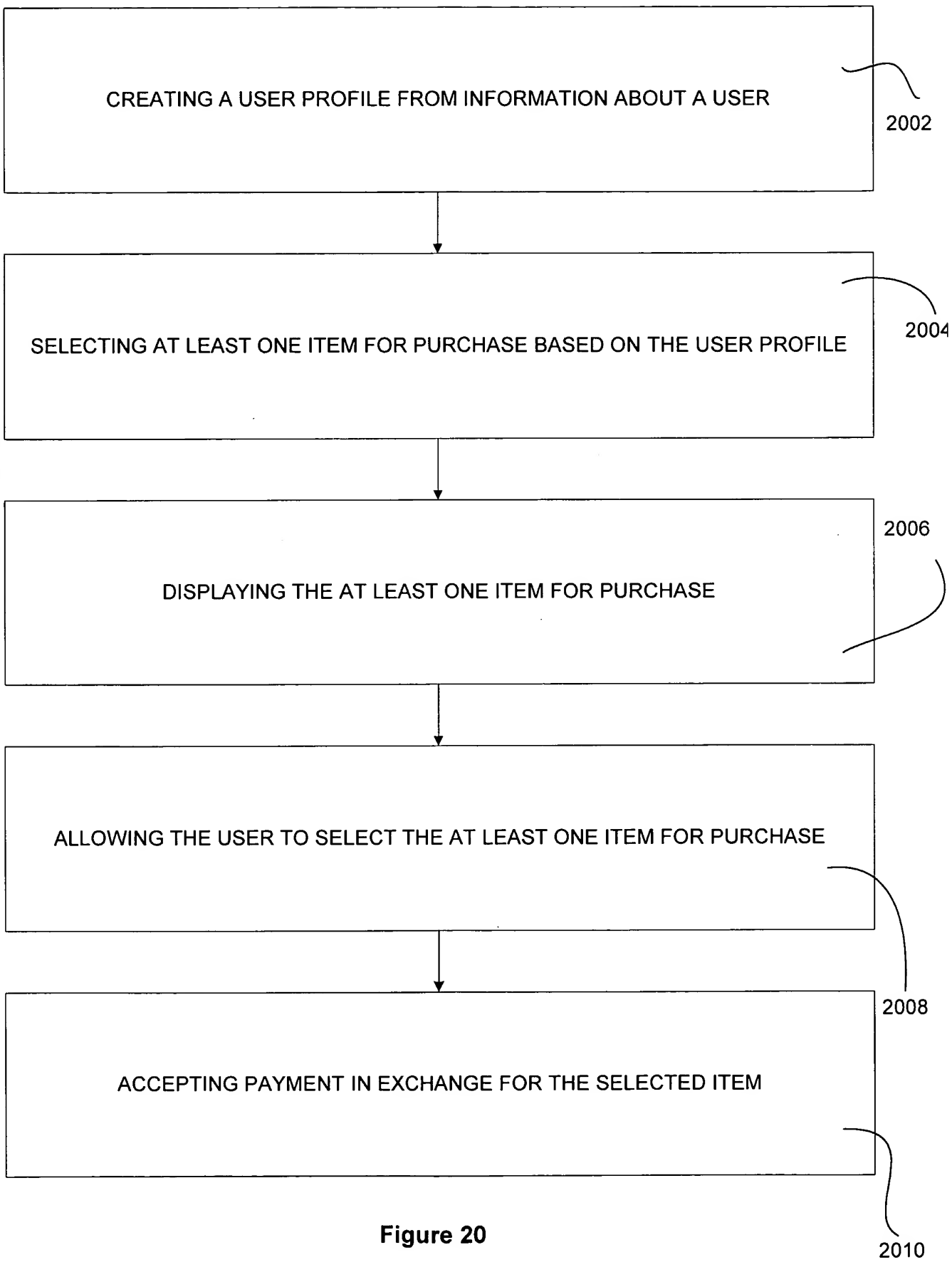

CREATING A USER PROFILE FROM INFORMATION ABOUT A USER
2002
SELECTING AT LEAST ONE ITEM FOR PURCHASE BASED ON THE USER PROFILE
2004
DISPLAYING THE AT LEAST ONE ITEM FOR PURCHASE
2006
ALLOWING THE USER TO SELECT THE AT LEAST ONE ITEM FOR PURCHASE
2008
ACCEPTING PAYMENT IN EXCHANGE FOR THE SELECTED ITEM
2010

Figure 20

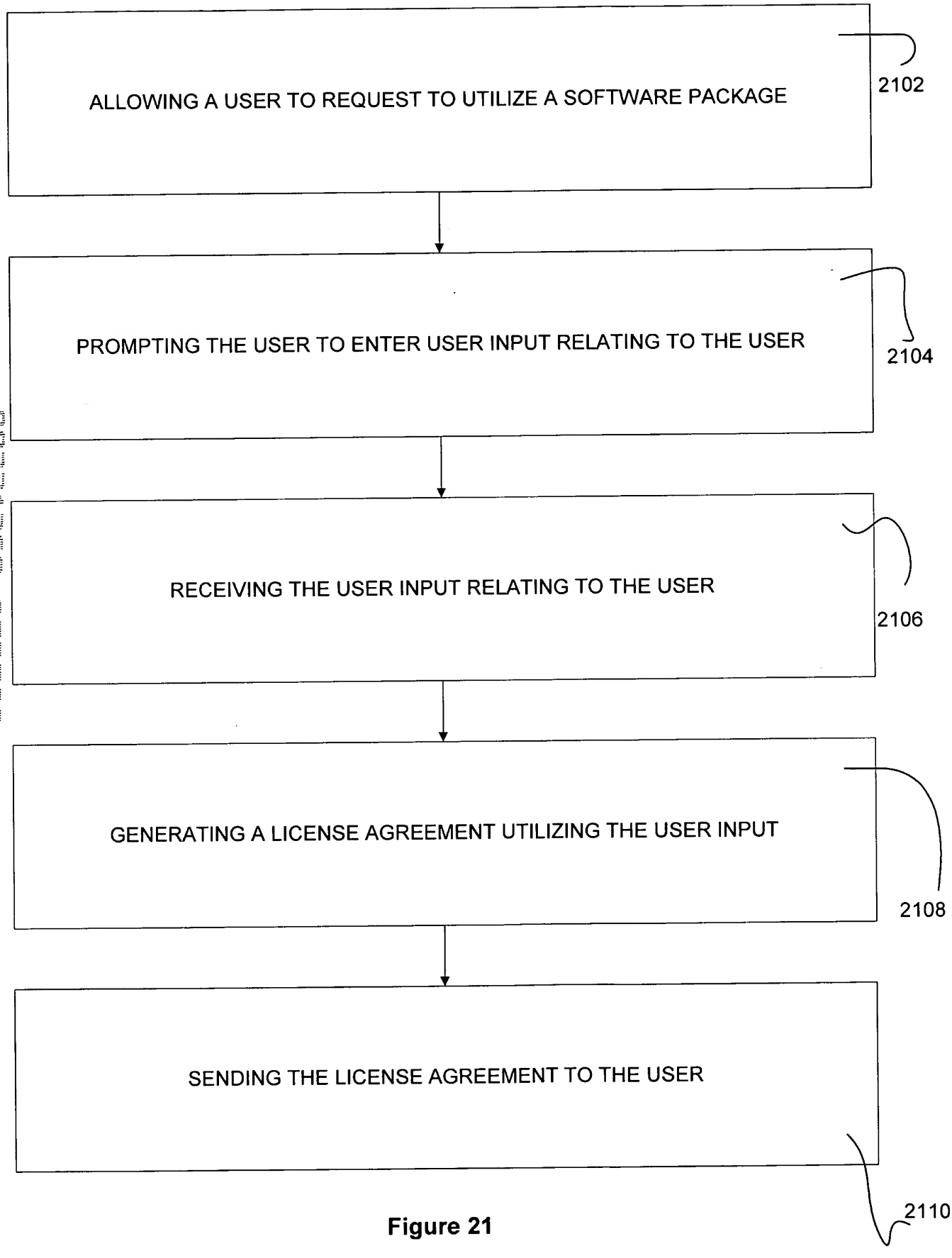

ALLOWING A USER TO REQUEST TO UTILIZE A SOFTWARE PACKAGE
2102
PROMPTING THE USER TO ENTER USER INPUT RELATING TO THE USER
2104
RECEIVING THE USER INPUT RELATING TO THE USER
2106
GENERATING A LICENSE AGREEMENT UTILIZING THE USER INPUT
2108
SENDING THE LICENSE AGREEMENT TO THE USER
2110

Figure 21

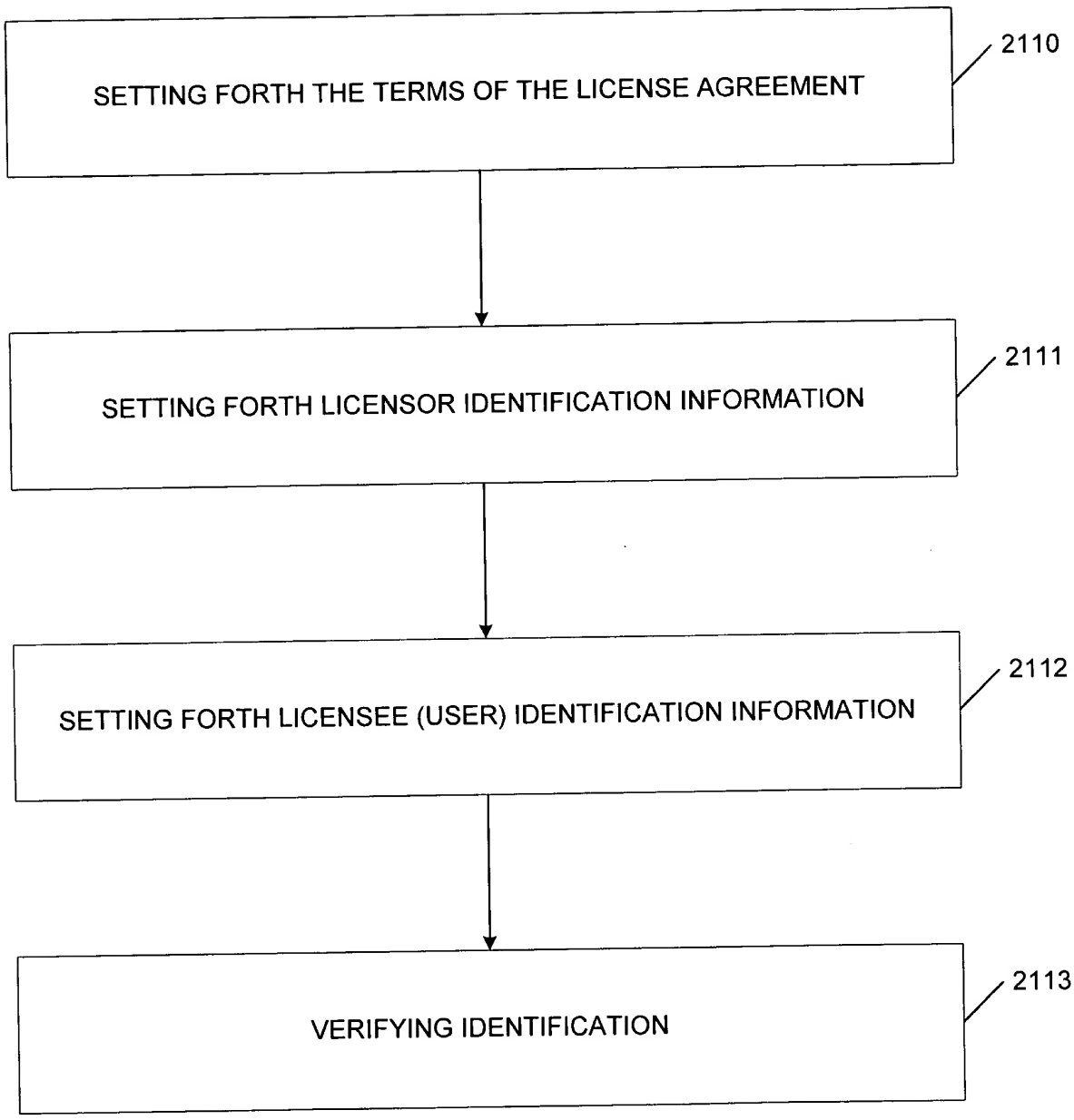

SETTING FORTH THE TERMS OF THE LICENSE AGREEMENT
2110
SETTING FORTH LICENSOR IDENTIFICATION INFORMATION
2111
SETTING FORTH LICENSEE (USER) IDENTIFICATION INFORMATION
2112
VERIFYING IDENTIFICATION
2113
2108

Figure 21A

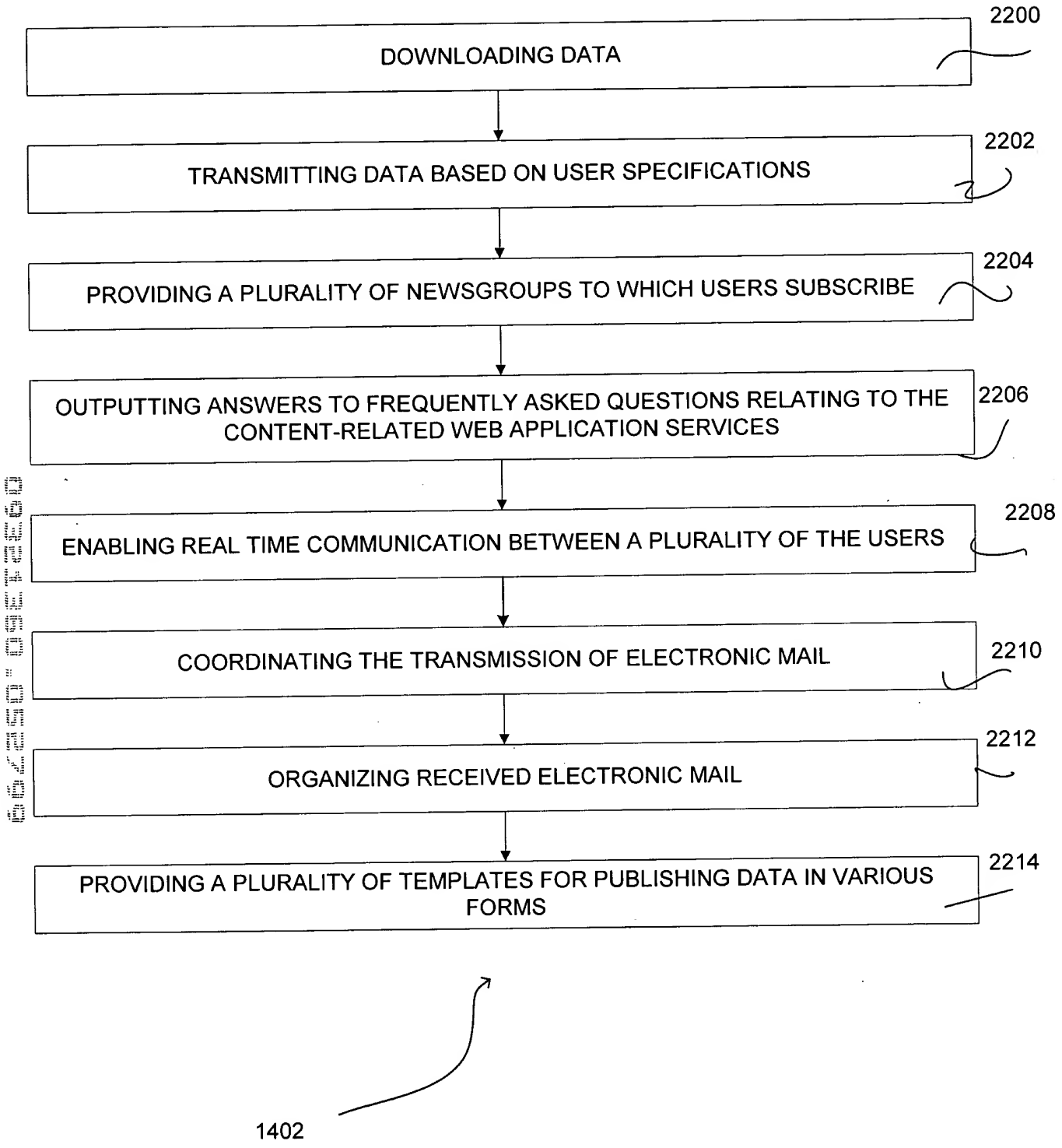

2200
DOWNLOADING DATA
2202
TRANSMITTING DATA BASED ON USER SPECIFICATIONS
2204
PROVIDING A PLURALITY OF NEWSGROUPS TO WHICH USERS SUBSCRIBE
2206
OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELATING TO THE CONTENT-RELATED WEB APPLICATION SERVICES
2208
ENABLING REAL TIME COMMUNICATION BETWEEN A PLURALITY OF THE USERS
2210
COORDINATING THE TRANSMISSION OF ELECTRONIC MAIL
2212
ORGANIZING RECEIVED ELECTRONIC MAIL
2214
PROVIDING A PLURALITY OF TEMPLATES FOR PUBLISHING DATA IN VARIOUS FORMS
1402

Figure 22

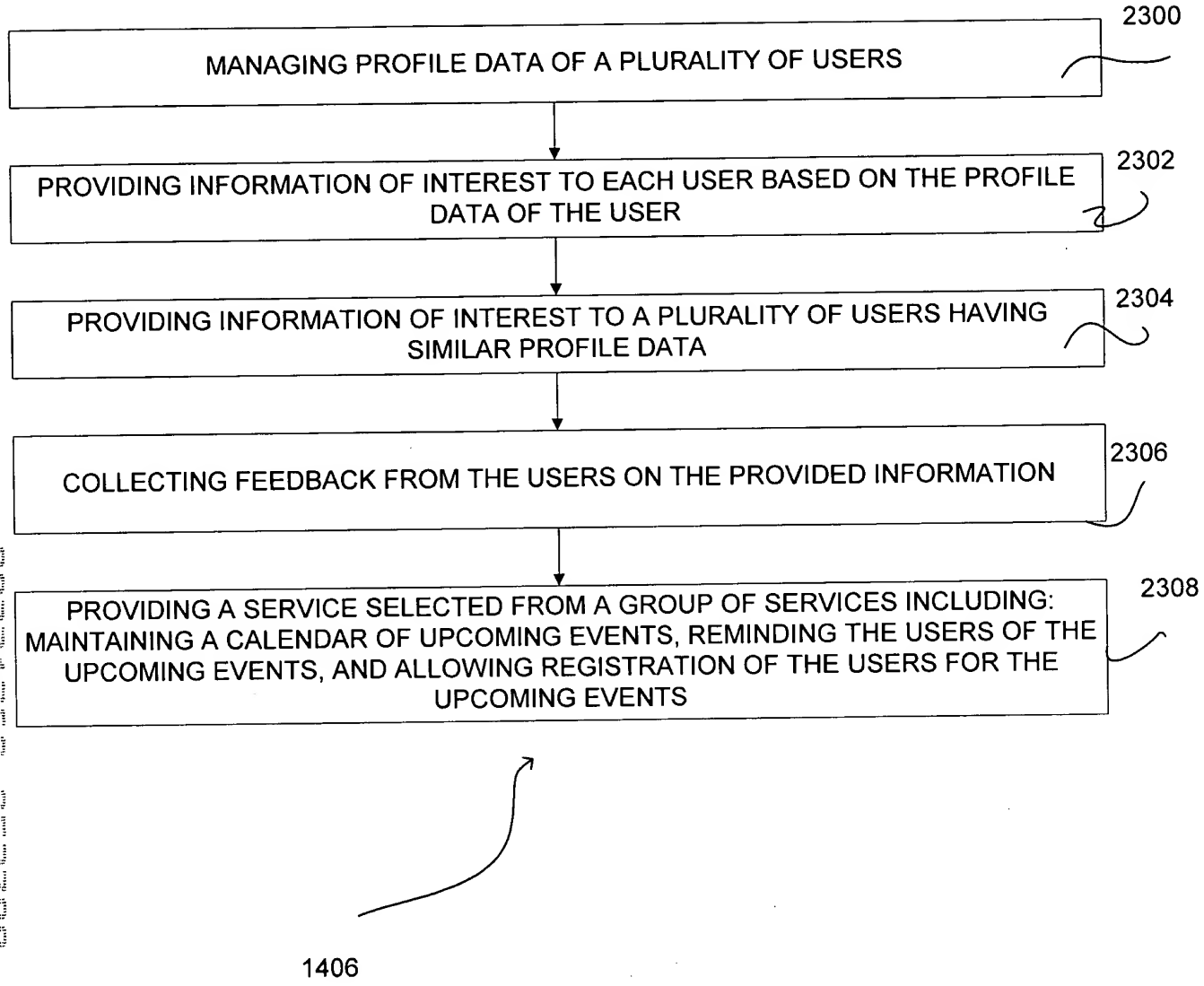

MANAGING PROFILE DATA OF A PLURALITY OF USERS
2300
PROVIDING INFORMATION OF INTEREST TO EACH USER BASED ON THE PROFILE DATA OF THE USER
2302
PROVIDING INFORMATION OF INTEREST TO A PLURALITY OF USERS HAVING SIMILAR PROFILE DATA
2304
COLLECTING FEEDBACK FROM THE USERS ON THE PROVIDED INFORMATION
2306
PROVIDING A SERVICE SELECTED FROM A GROUP OF SERVICES INCLUDING: MAINTAINING A CALENDAR OF UPCOMING EVENTS, REMINDING THE USERS OF THE UPCOMING EVENTS, AND ALLOWING REGISTRATION OF THE USERS FOR THE UPCOMING EVENTS
2308
1406

Figure 23

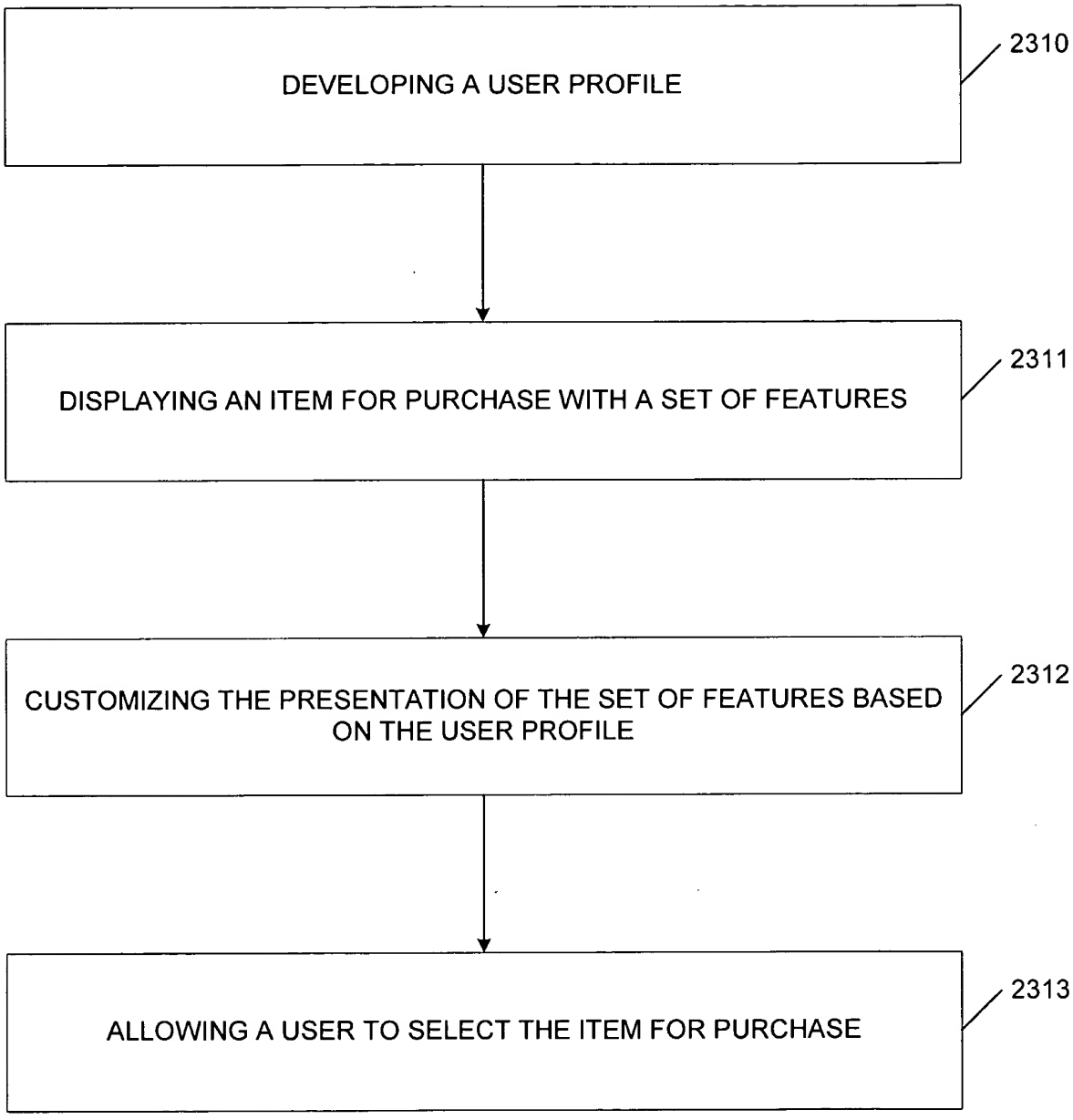

DEVELOPING A USER PROFILE
2310
DISPLAYING AN ITEM FOR PURCHASE WITH A SET OF FEATURES
2311
CUSTOMIZING THE PRESENTATION OF THE SET OF FEATURES BASED ON THE USER PROFILE
2312
ALLOWING A USER TO SELECT THE ITEM FOR PURCHASE
2313
2300

Figure 23A

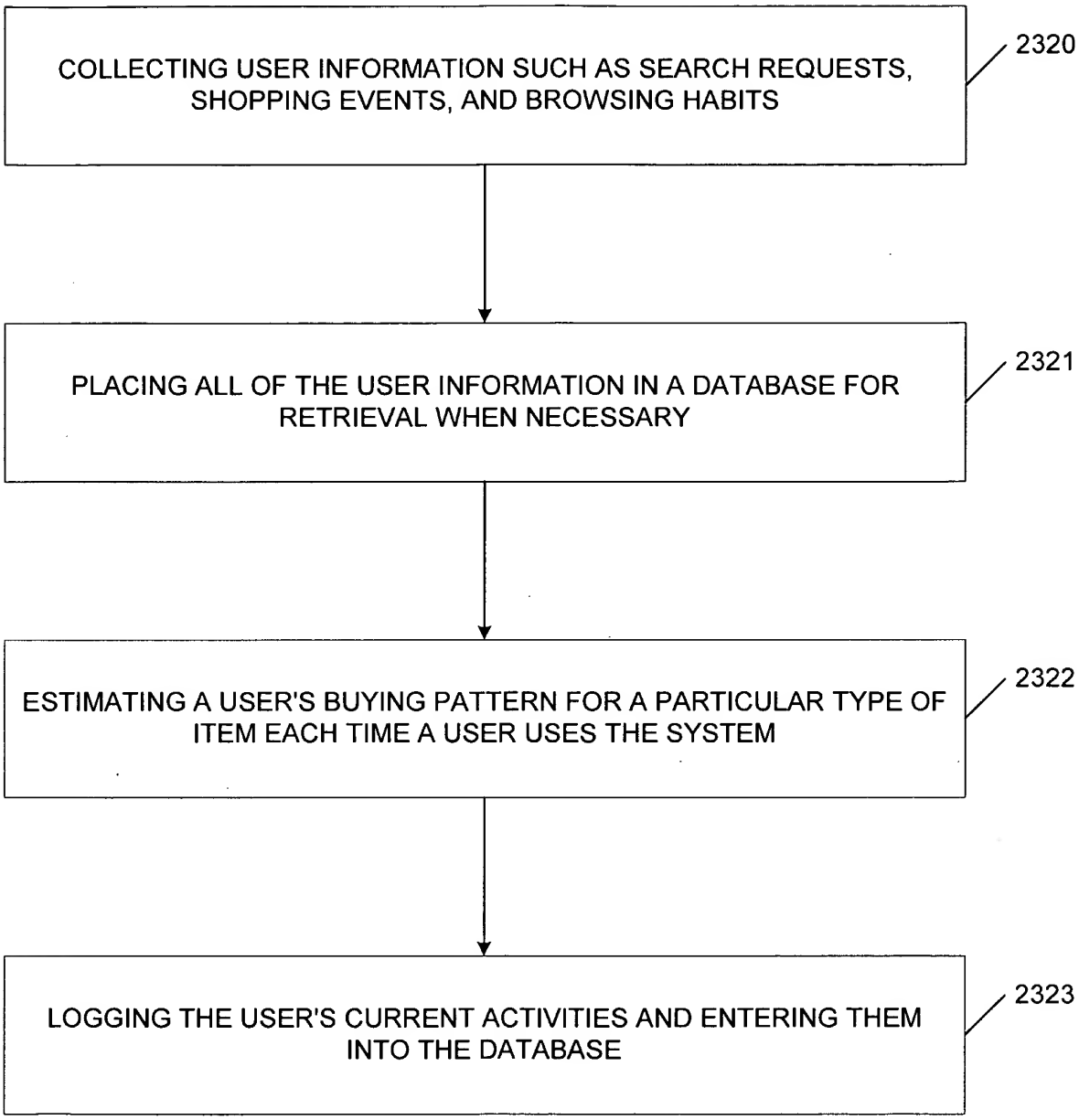
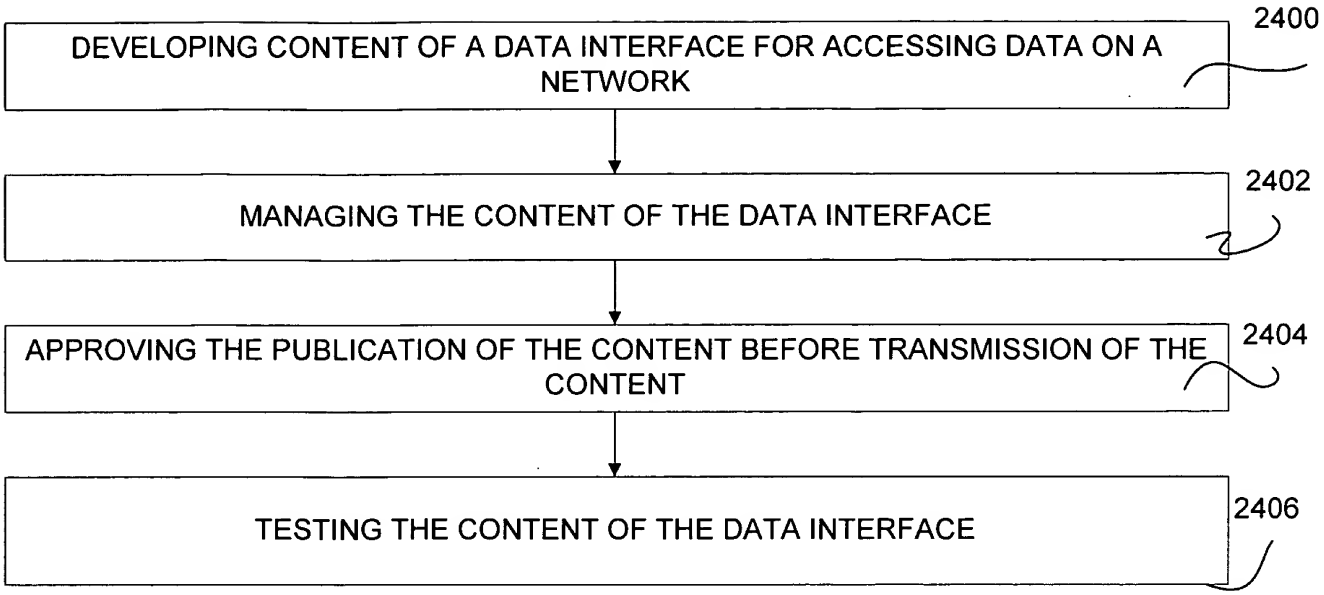
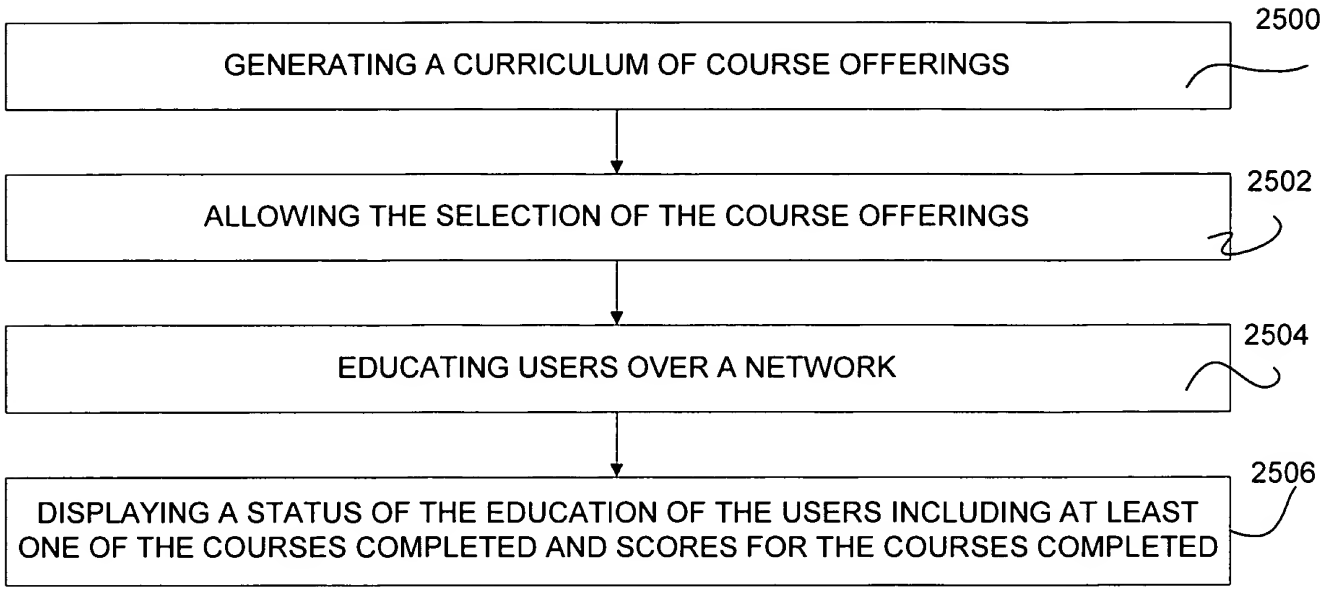

COLLECTING USER INFORMATION SUCH AS SEARCH REQUESTS, SHOPPING EVENTS, AND BROWSING HABITS
2320
PLACING ALL OF THE USER INFORMATION IN A DATABASE FOR RETRIEVAL WHEN NECESSARY
2321
ESTIMATING A USER'S BUYING PATTERN FOR A PARTICULAR TYPE OF ITEM EACH TIME A USER USES THE SYSTEM
2322
LOGGING THE USER'S CURRENT ACTIVITIES AND ENTERING THEM INTO THE DATABASE
2323
2310

Figure 23B



1408

Figure 24



1410

Figure 25

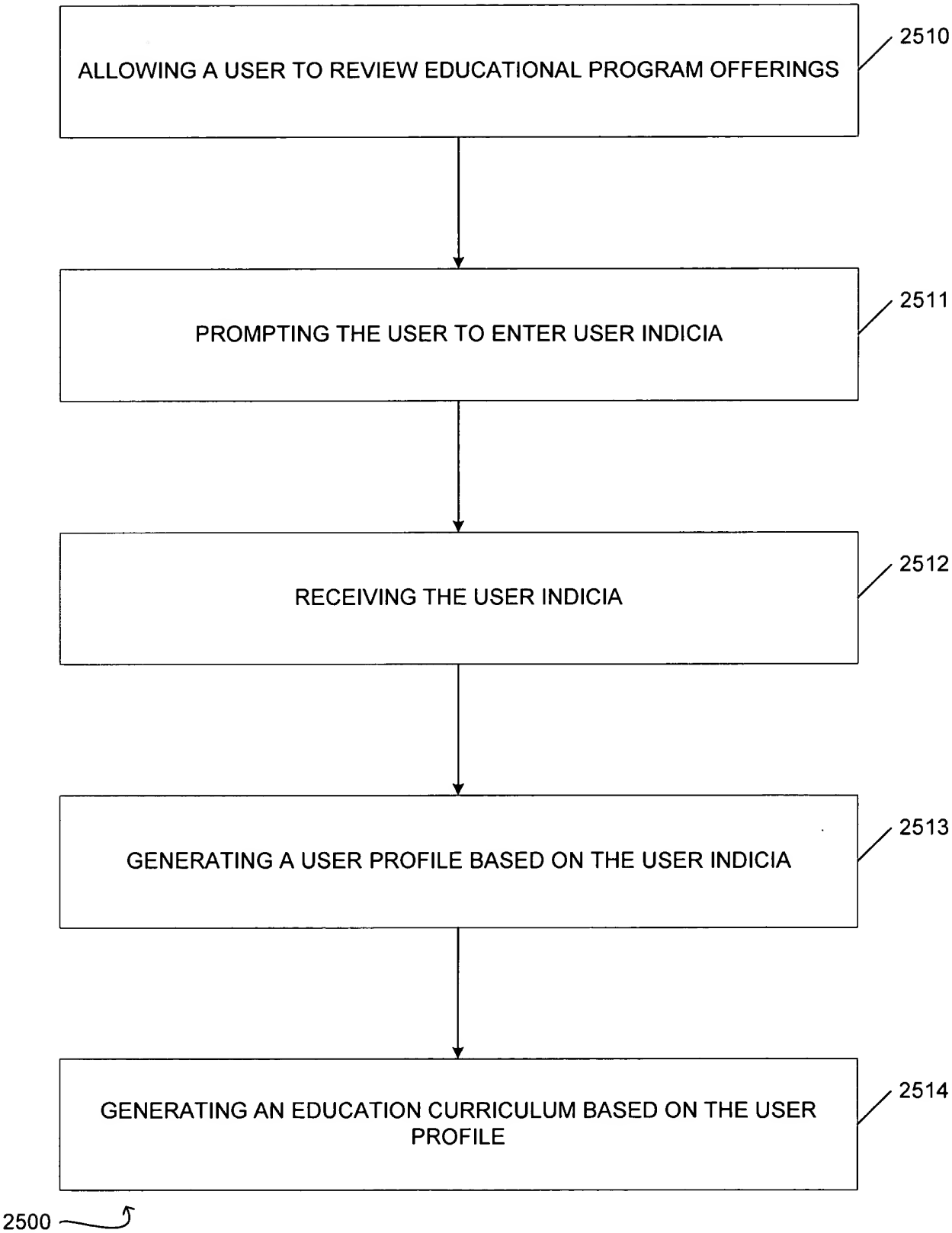

ALLOWING A USER TO REVIEW EDUCATIONAL PROGRAM OFFERINGS
2510
PROMPTING THE USER TO ENTER USER INDICIA
2511
RECEIVING THE USER INDICIA
2512
GENERATING A USER PROFILE BASED ON THE USER INDICIA
2513
GENERATING AN EDUCATION CURRICULUM BASED ON THE USER PROFILE
2514
2500

Figure 25A

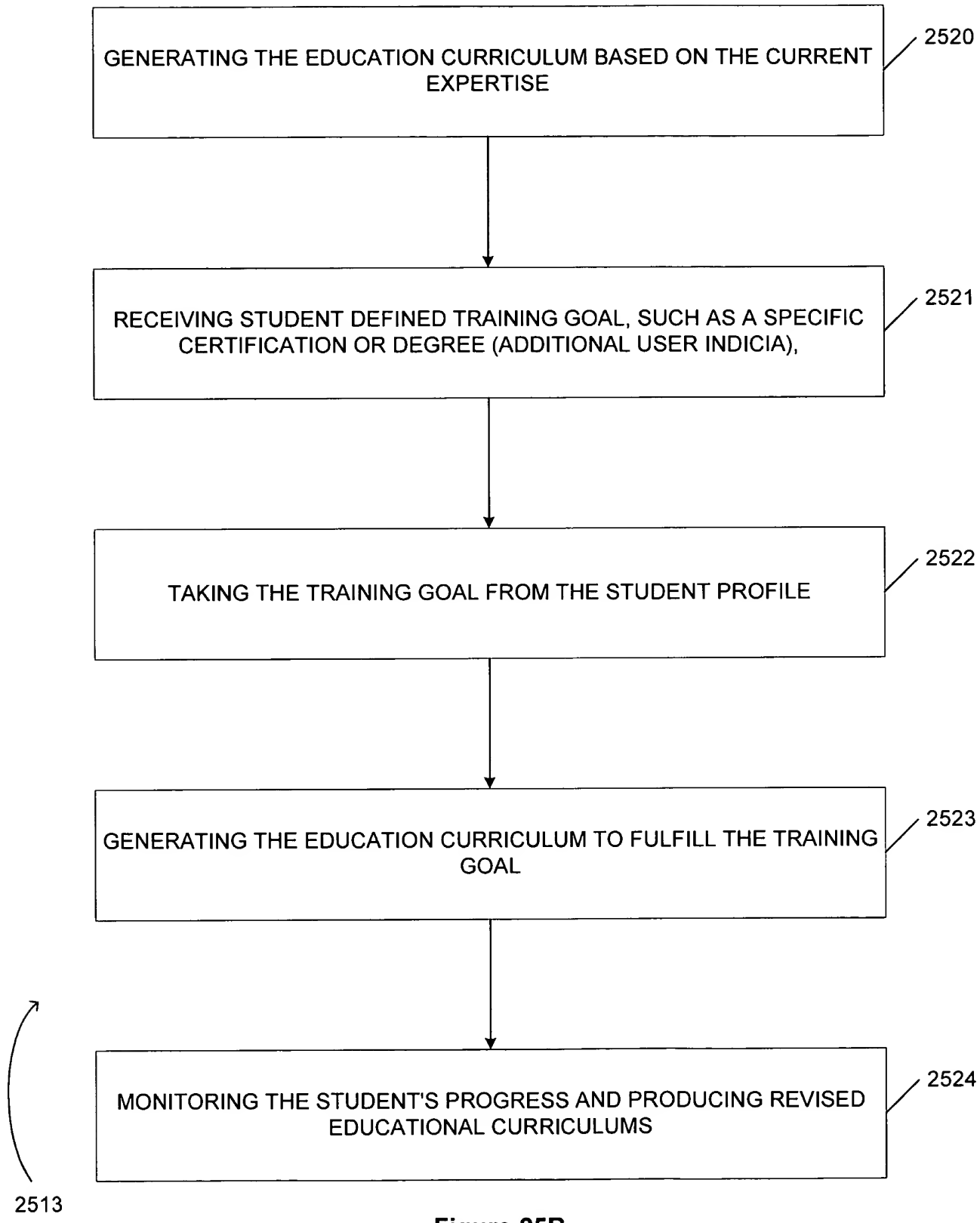

GENERATING THE EDUCATION CURRICULUM BASED ON THE CURRENT EXPERTISE
2520
RECEIVING STUDENT DEFINED TRAINING GOAL, SUCH AS A SPECIFIC CERTIFICATION OR DEGREE (ADDITIONAL USER INDICIA),
2521
TAKING THE TRAINING GOAL FROM THE STUDENT PROFILE
2522
GENERATING THE EDUCATION CURRICULUM TO FULFILL THE TRAINING GOAL
2523
MONITORING THE STUDENT'S PROGRESS AND PRODUCING REVISED EDUCATIONAL CURRICULUMS
2524
2513

Figure 25B

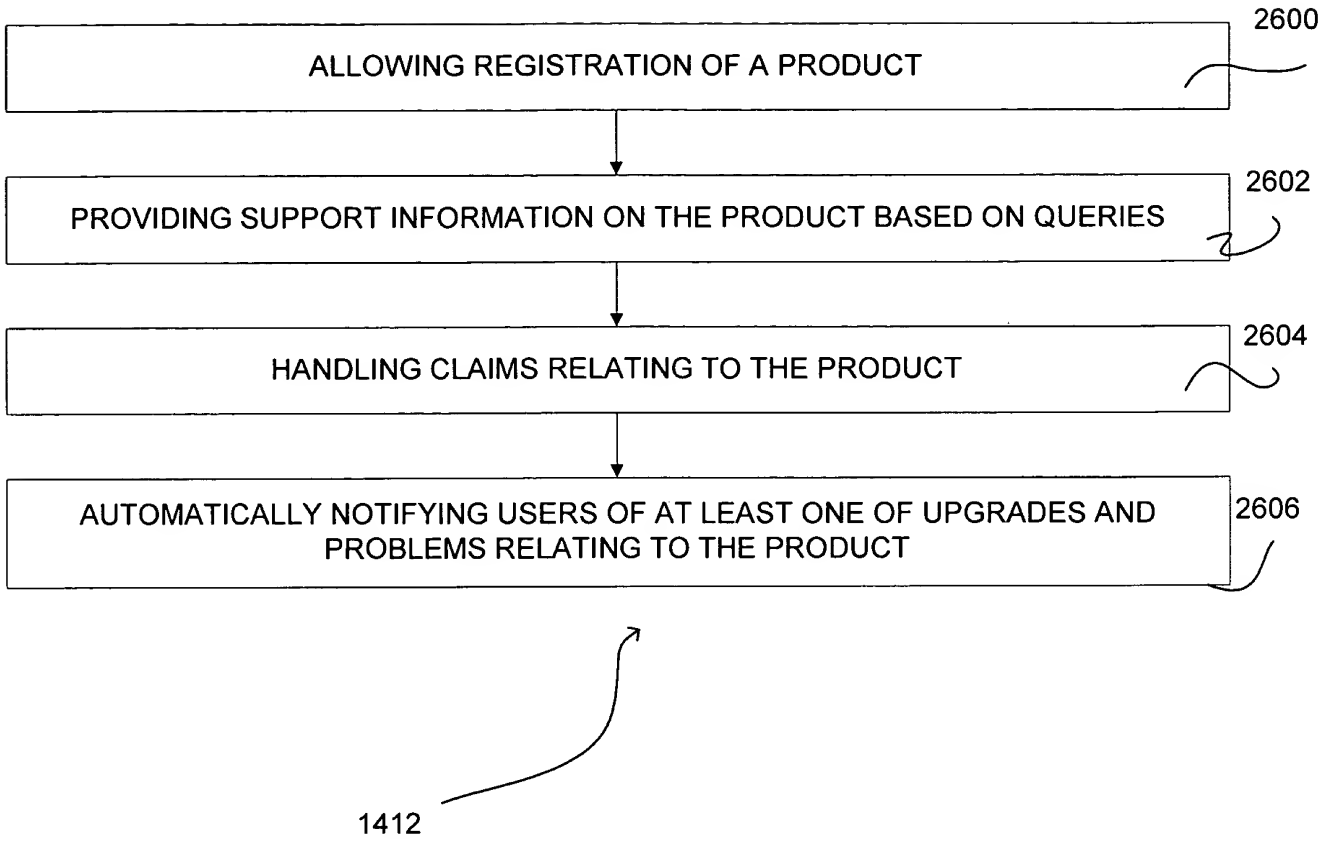
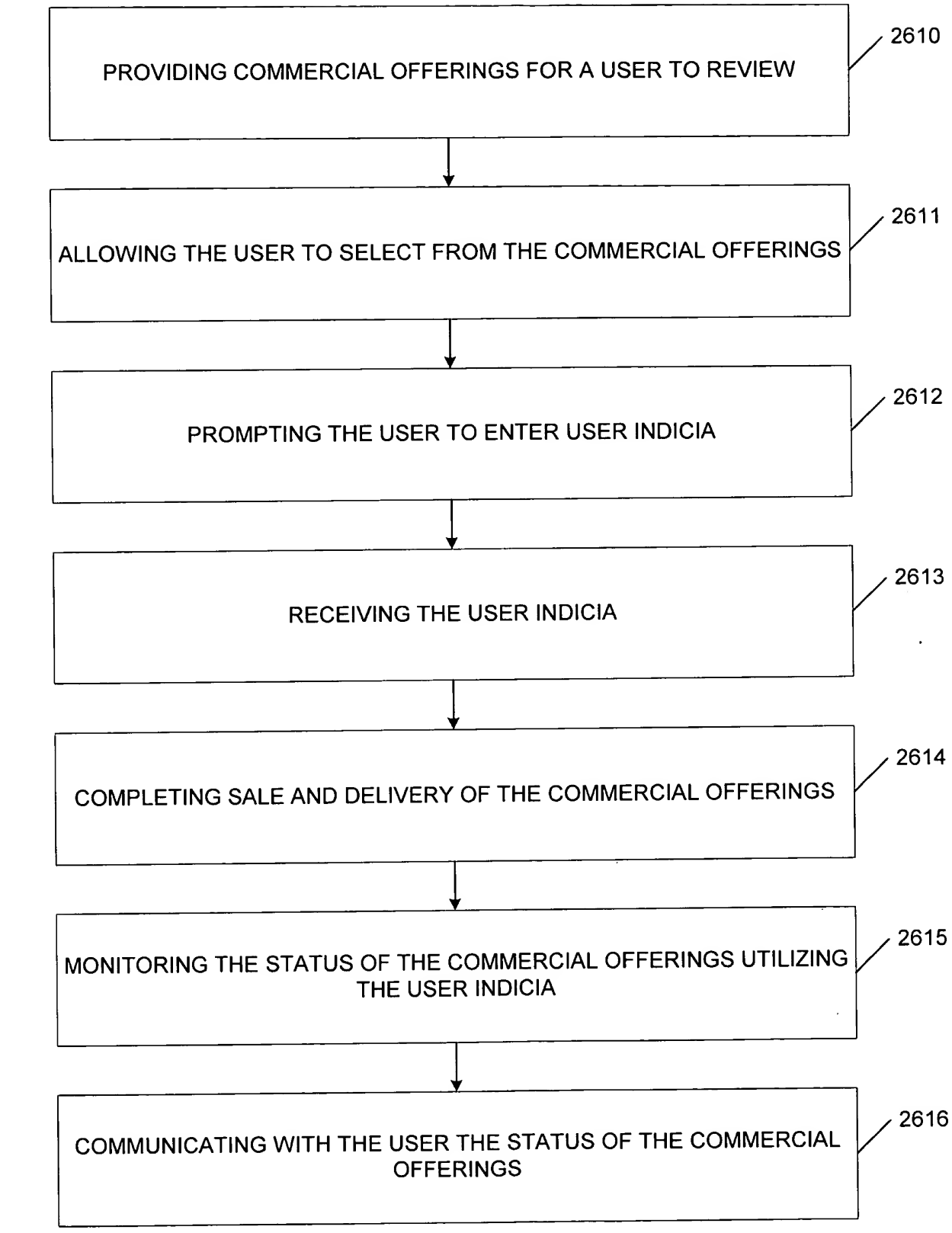

ALLOWING REGISTRATION OF A PRODUCT
2600
PROVIDING SUPPORT INFORMATION ON THE PRODUCT BASED ON QUERIES
2602
HANDLING CLAIMS RELATING TO THE PRODUCT
2604
AUTOMATICALLY NOTIFYING USERS OF AT LEAST ONE OF UPGRADES AND PROBLEMS RELATING TO THE PRODUCT
2606
1412

Figure 26



2606

Figure 26A

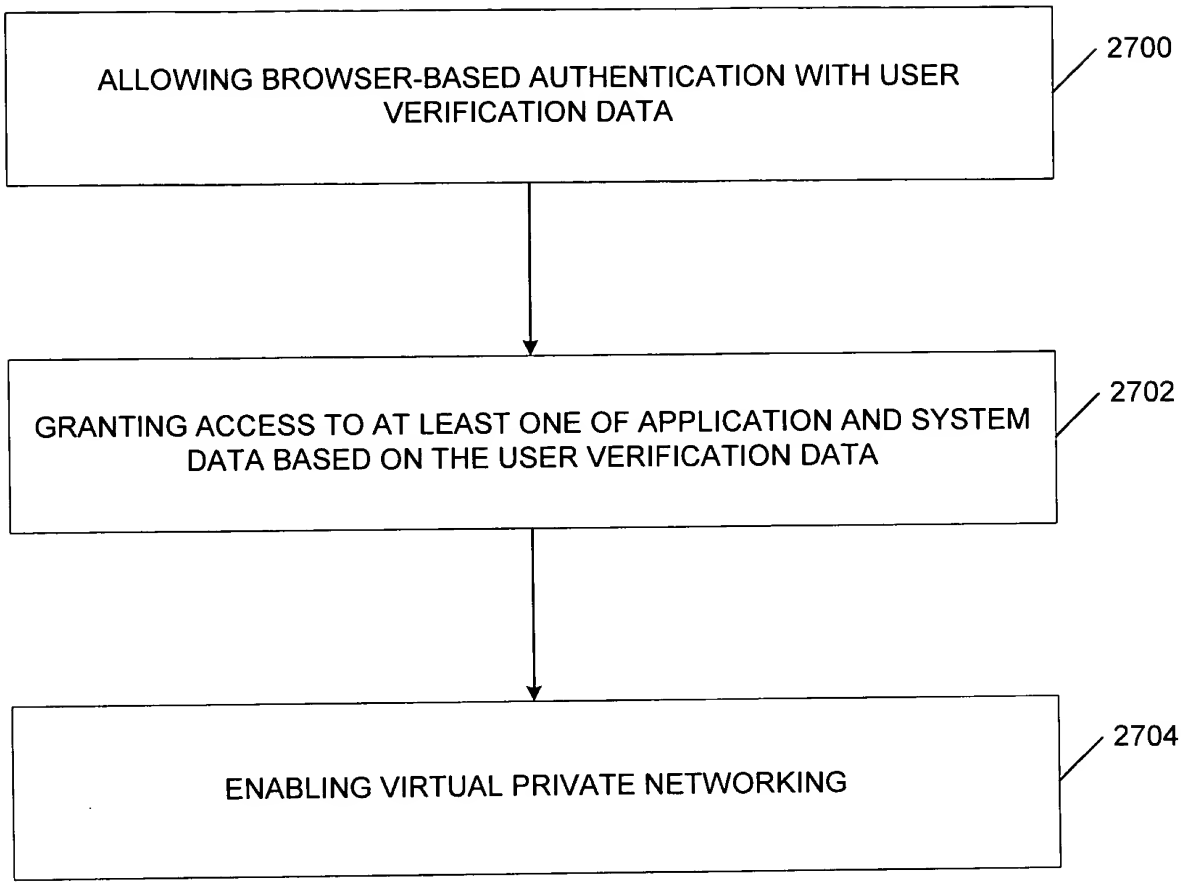

ALLOWING BROWSER-BASED AUTHENTICATION WITH USER VERIFICATION DATA
2700
GRANTING ACCESS TO AT LEAST ONE OF APPLICATION AND SYSTEM DATA BASED ON THE USER VERIFICATION DATA
2702
ENABLING VIRTUAL PRIVATE NETWORKING
2704
1414

Figure 27

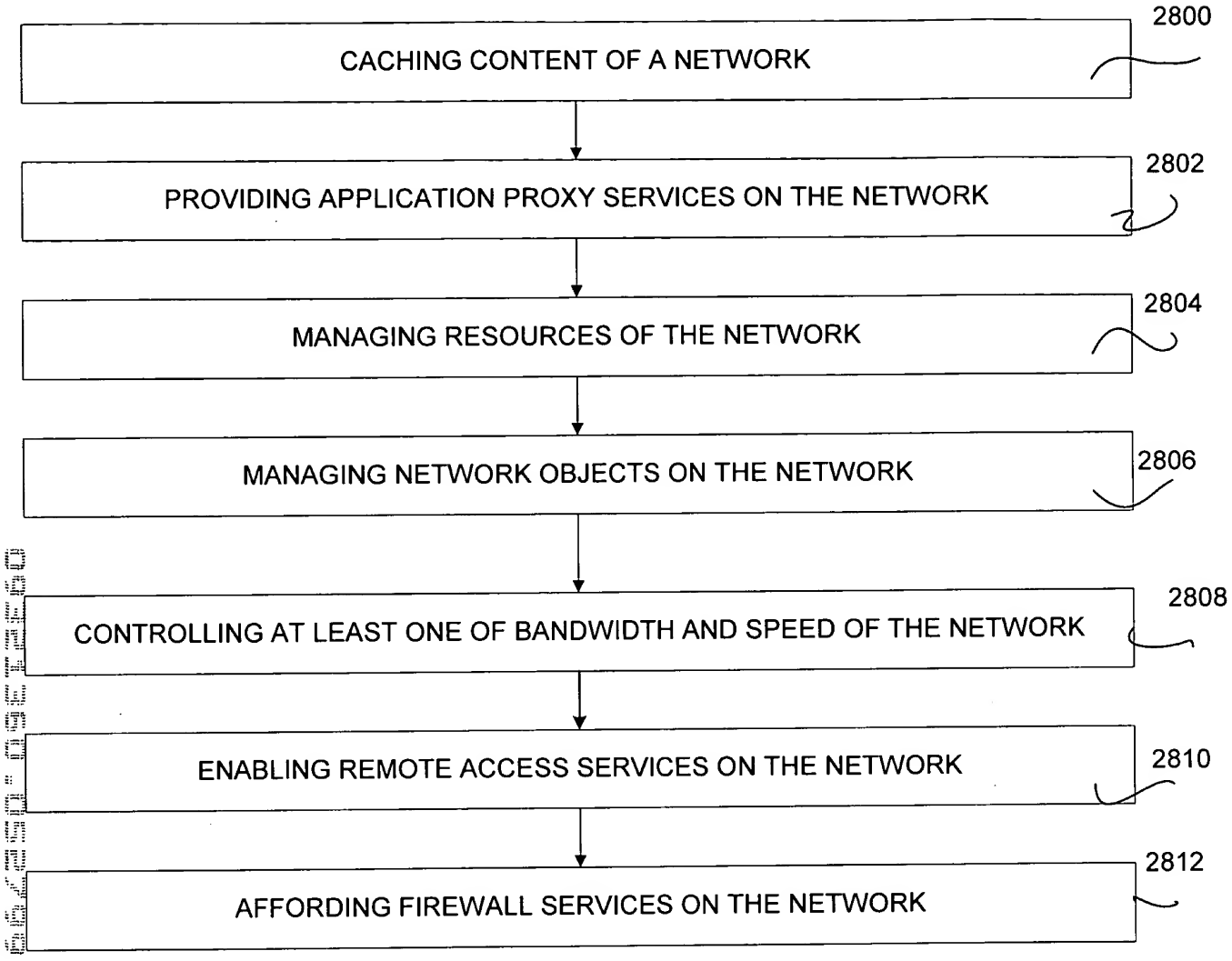

2800
CACHING CONTENT OF A NETWORK
2802
PROVIDING APPLICATION PROXY SERVICES ON THE NETWORK
2804
MANAGING RESOURCES OF THE NETWORK
2806
MANAGING NETWORK OBJECTS ON THE NETWORK
2808
CONTROLLING AT LEAST ONE OF BANDWIDTH AND SPEED OF THE NETWORK
2810
ENABLING REMOTE ACCESS SERVICES ON THE NETWORK
2812
AFFORDING FIREWALL SERVICES ON THE NETWORK
1416

Figure 28

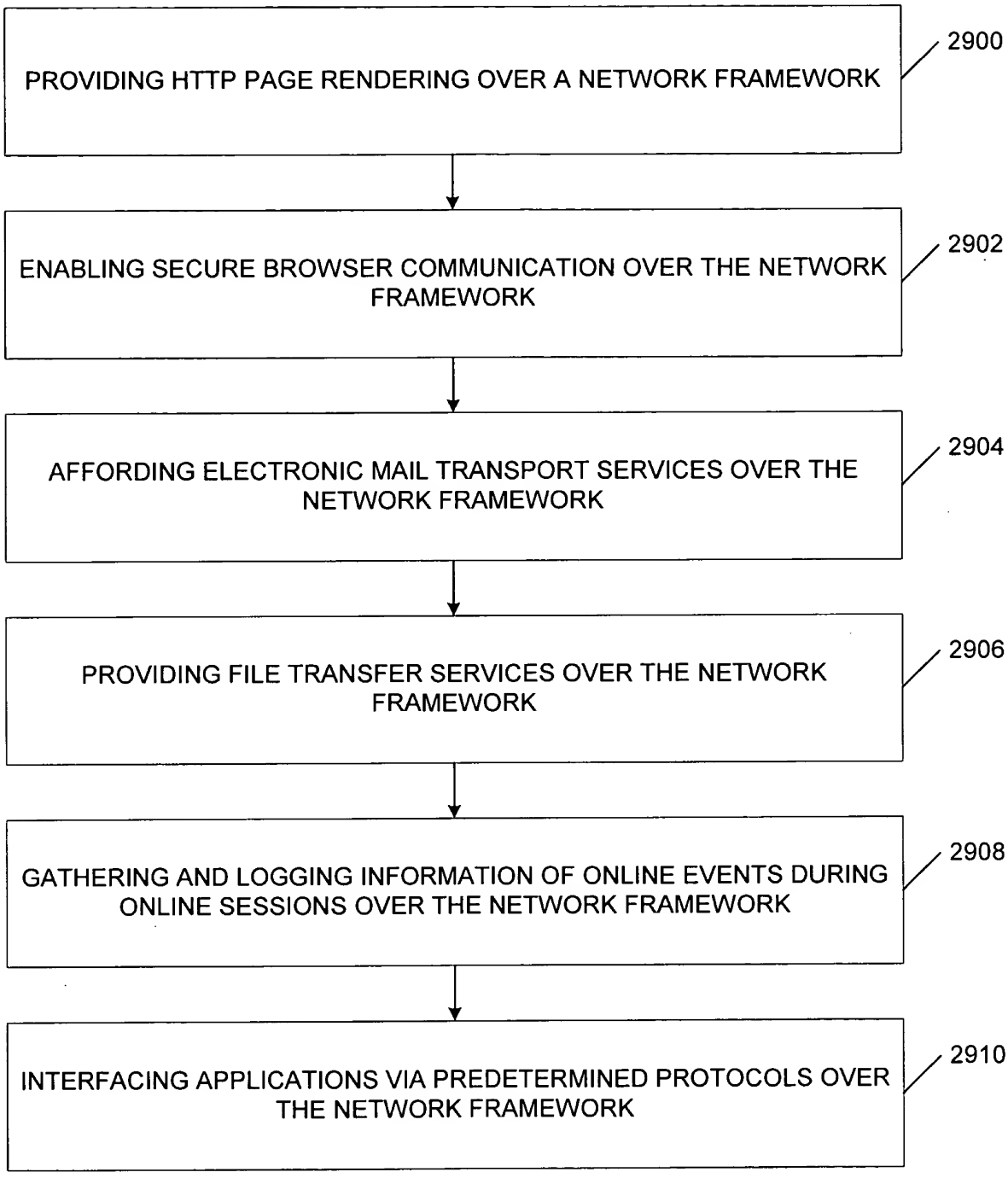

PROVIDING HTTP PAGE RENDERING OVER A NETWORK FRAMEWORK
2900
ENABLING SECURE BROWSER COMMUNICATION OVER THE NETWORK FRAMEWORK
2902
AFFORDING ELECTRONIC MAIL TRANSPORT SERVICES OVER THE NETWORK FRAMEWORK
2904
PROVIDING FILE TRANSFER SERVICES OVER THE NETWORK FRAMEWORK
2906
GATHERING AND LOGGING INFORMATION OF ONLINE EVENTS DURING ONLINE SESSIONS OVER THE NETWORK FRAMEWORK
2908
INTERFACING APPLICATIONS VIA PREDETERMINED PROTOCOLS OVER THE NETWORK FRAMEWORK
2910
1418

Figure 29

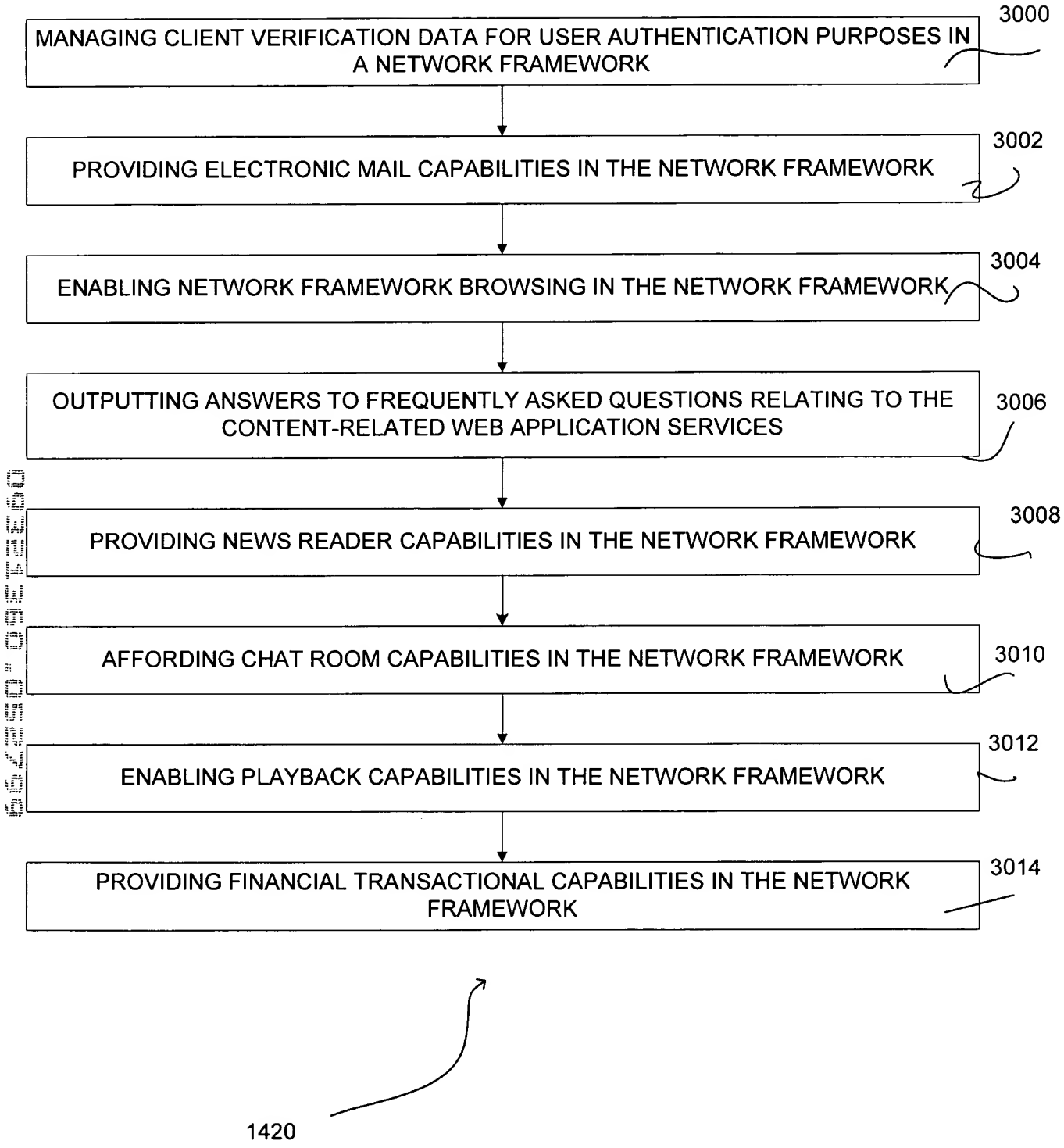

MANAGING CLIENT VERIFICATION DATA FOR USER AUTHENTICATION PURPOSES IN A NETWORK FRAMEWORK
3000
PROVIDING ELECTRONIC MAIL CAPABILITIES IN THE NETWORK FRAMEWORK
3002
ENABLING NETWORK FRAMEWORK BROWSING IN THE NETWORK FRAMEWORK
3004
OUTPUTTING ANSWERS TO FREQUENTLY ASKED QUESTIONS RELATING TO THE CONTENT-RELATED WEB APPLICATION SERVICES
3006
PROVIDING NEWS READER CAPABILITIES IN THE NETWORK FRAMEWORK
3008
AFFORDING CHAT ROOM CAPABILITIES IN THE NETWORK FRAMEWORK
3010
ENABLING PLAYBACK CAPABILITIES IN THE NETWORK FRAMEWORK
3012
PROVIDING FINANCIAL TRANSACTIONAL CAPABILITIES IN THE NETWORK FRAMEWORK
3014
1420

Figure 30

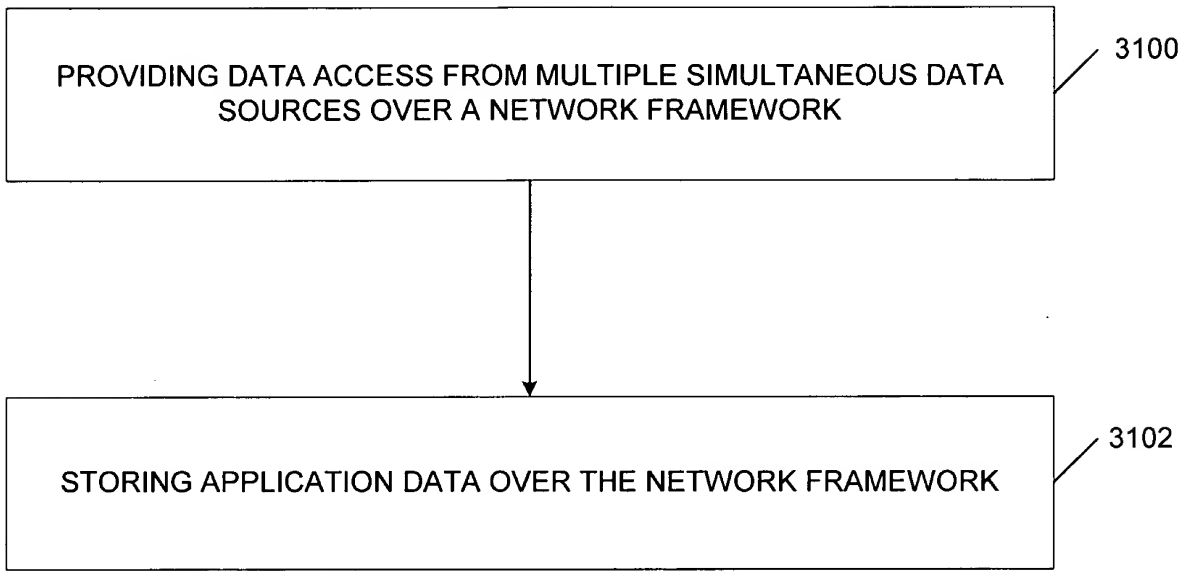


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Figure 31

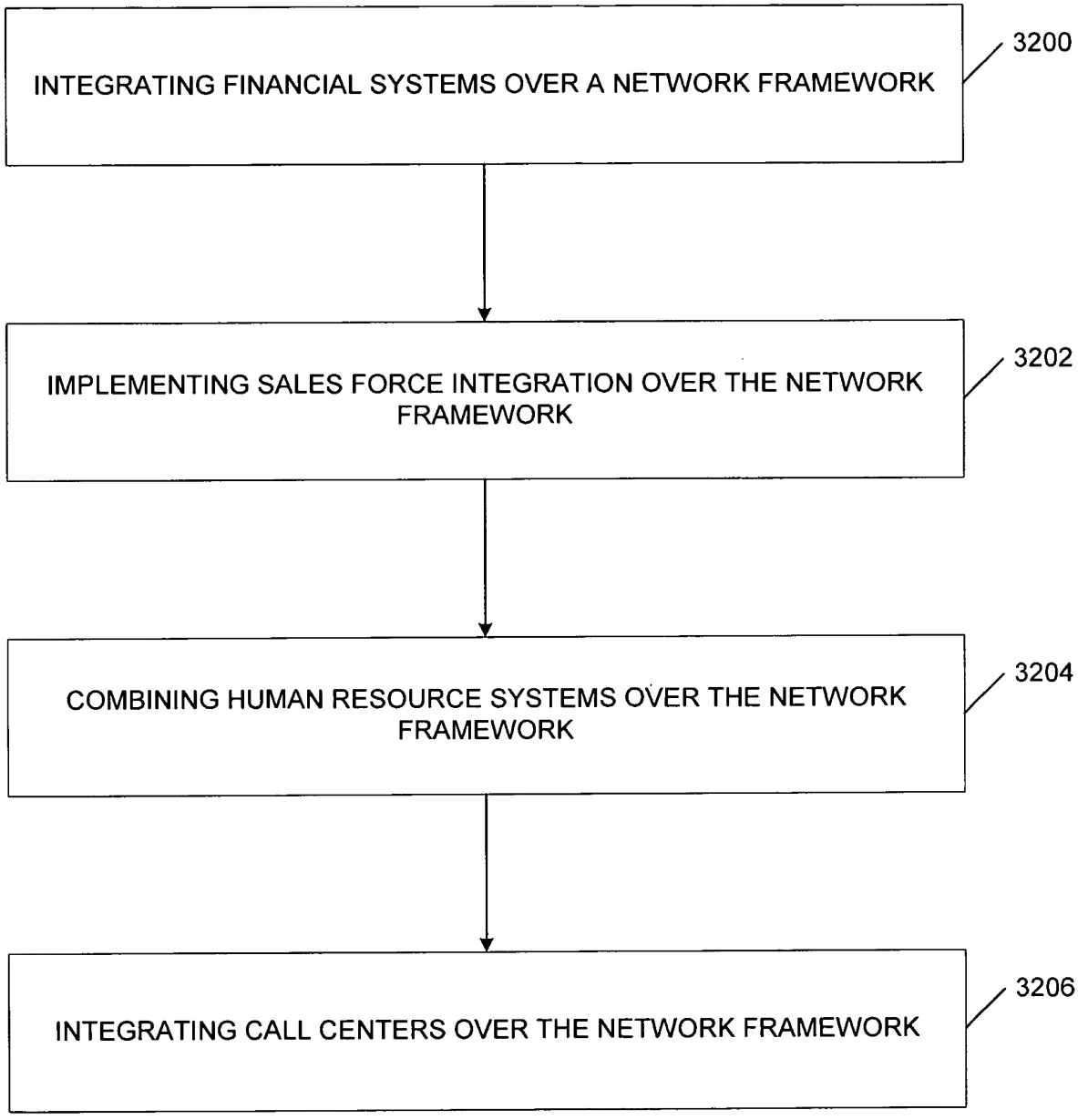
INTEGRATING FINANCIAL SYSTEMS OVER A NETWORK FRAMEWORK
3200
IMPLEMENTING SALES FORCE INTEGRATION OVER THE NETWORK FRAMEWORK
3202
COMBINING HUMAN RESOURCE SYSTEMS OVER THE NETWORK FRAMEWORK
3204
INTEGRATING CALL CENTERS OVER THE NETWORK FRAMEWORK
3206
1422

Figure 32

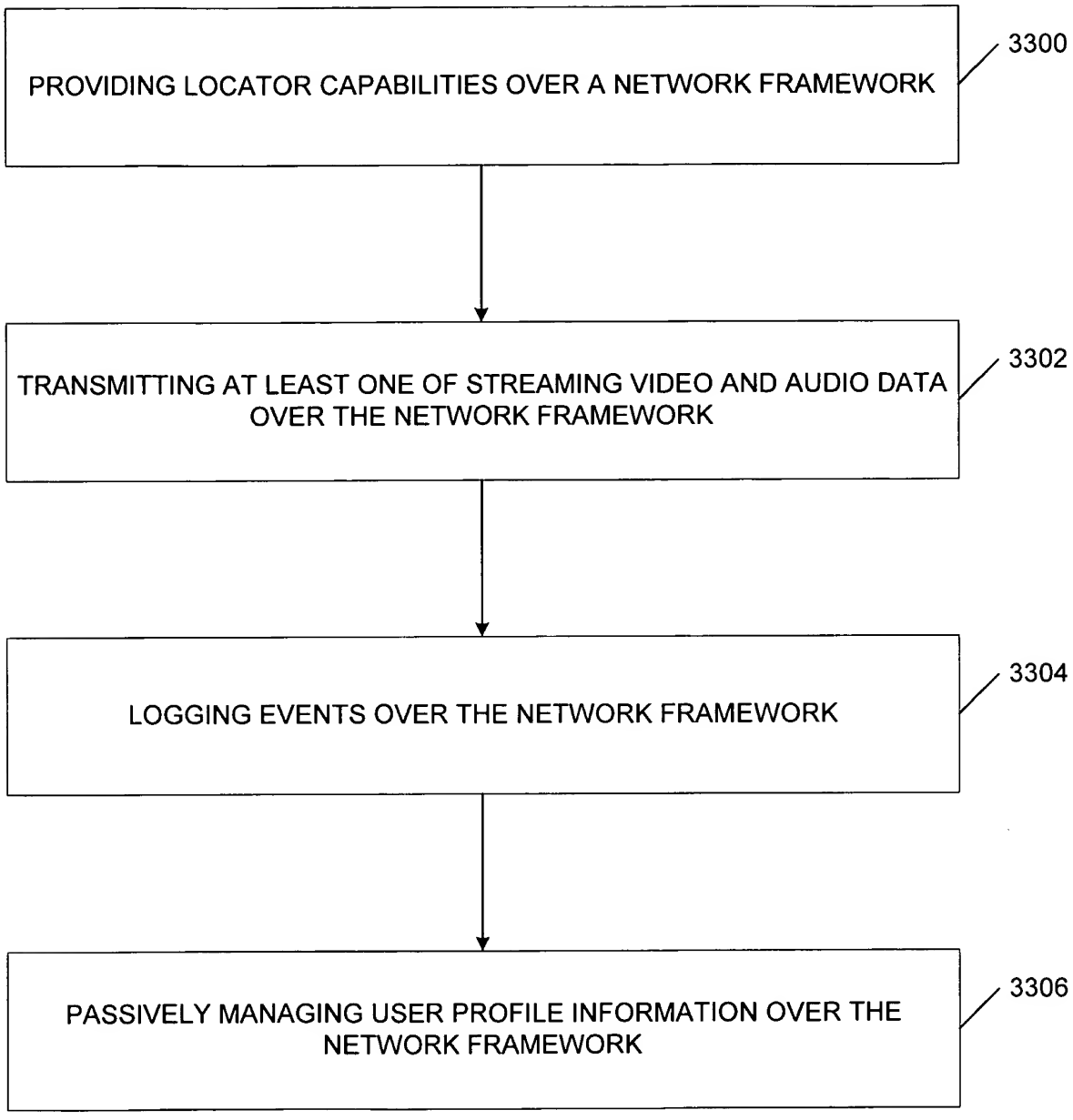
PROVIDING LOCATOR CAPABILITIES OVER A NETWORK FRAMEWORK
3300
TRANSMITTING AT LEAST ONE OF STREAMING VIDEO AND AUDIO DATA OVER THE NETWORK FRAMEWORK
3302
LOGGING EVENTS OVER THE NETWORK FRAMEWORK
3304
PASSIVELY MANAGING USER PROFILE INFORMATION OVER THE NETWORK FRAMEWORK
3306
1426

Figure 33

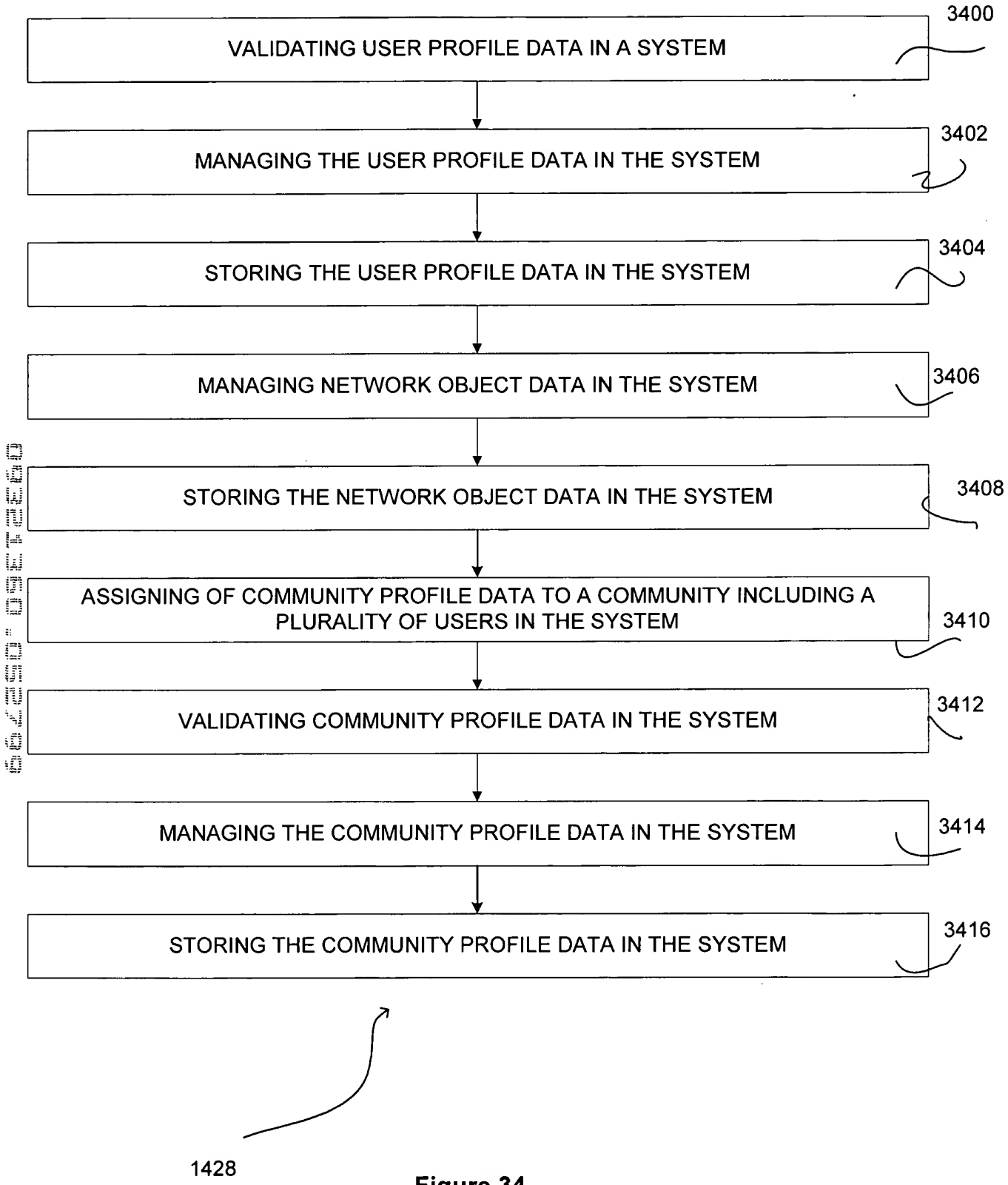
VALIDATING USER PROFILE DATA IN A SYSTEM
3400
MANAGING THE USER PROFILE DATA IN THE SYSTEM
3402
STORING THE USER PROFILE DATA IN THE SYSTEM
3404
MANAGING NETWORK OBJECT DATA IN THE SYSTEM
3406
STORING THE NETWORK OBJECT DATA IN THE SYSTEM
3408
ASSIGNING OF COMMUNITY PROFILE DATA TO A COMMUNITY INCLUDING A PLURALITY OF USERS IN THE SYSTEM
3410
VALIDATING COMMUNITY PROFILE DATA IN THE SYSTEM
3412
MANAGING THE COMMUNITY PROFILE DATA IN THE SYSTEM
3414
STORING THE COMMUNITY PROFILE DATA IN THE SYSTEM
3416
1428

Figure 34

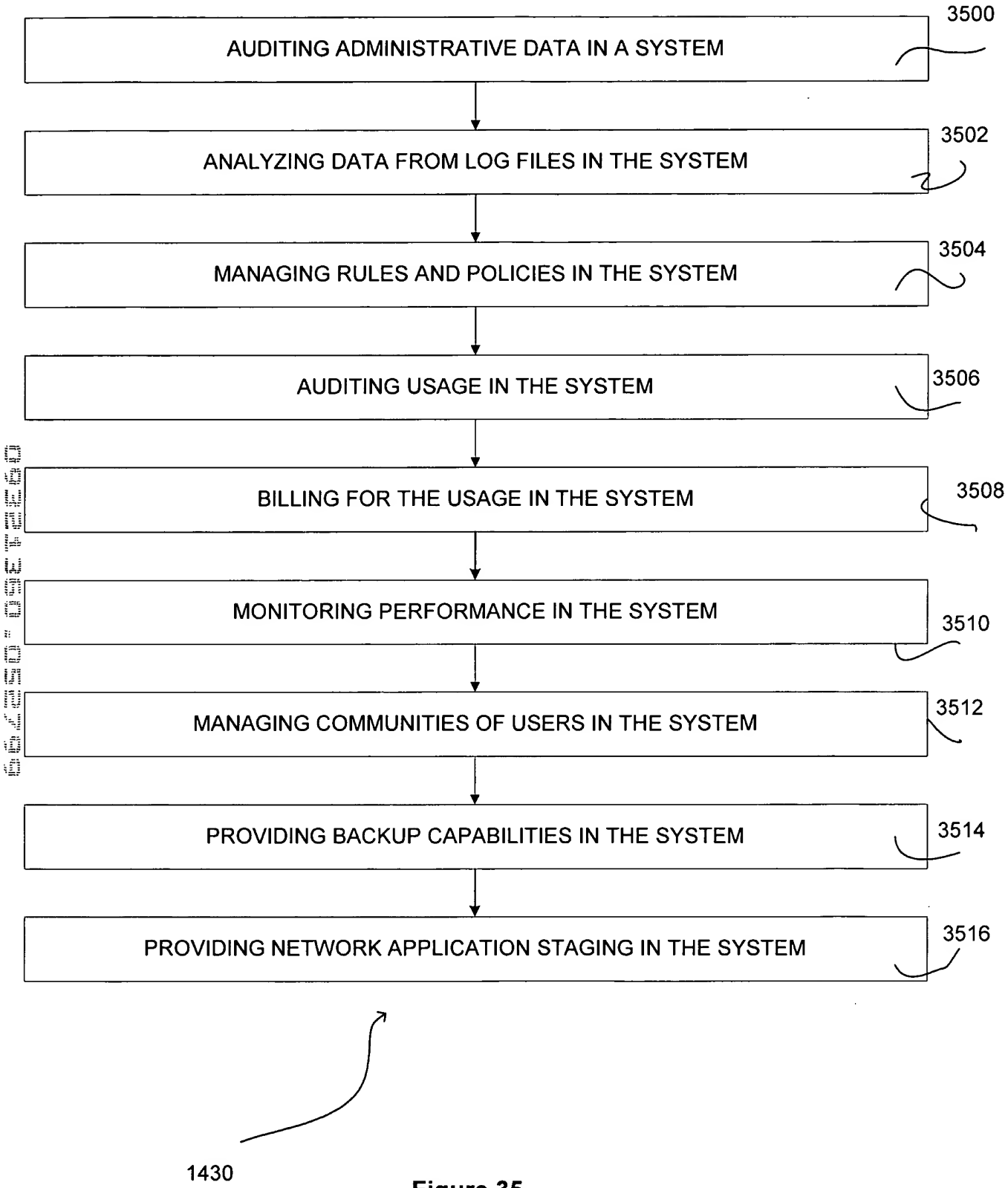
AUDITING ADMINISTRATIVE DATA IN A SYSTEM
3500
ANALYZING DATA FROM LOG FILES IN THE SYSTEM
3502
MANAGING RULES AND POLICIES IN THE SYSTEM
3504
AUDITING USAGE IN THE SYSTEM
3506
BILLING FOR THE USAGE IN THE SYSTEM
3508
MONITORING PERFORMANCE IN THE SYSTEM
3510
MANAGING COMMUNITIES OF USERS IN THE SYSTEM
3512
PROVIDING BACKUP CAPABILITIES IN THE SYSTEM
3514
PROVIDING NETWORK APPLICATION STAGING IN THE SYSTEM
3516
1430

Figure 35

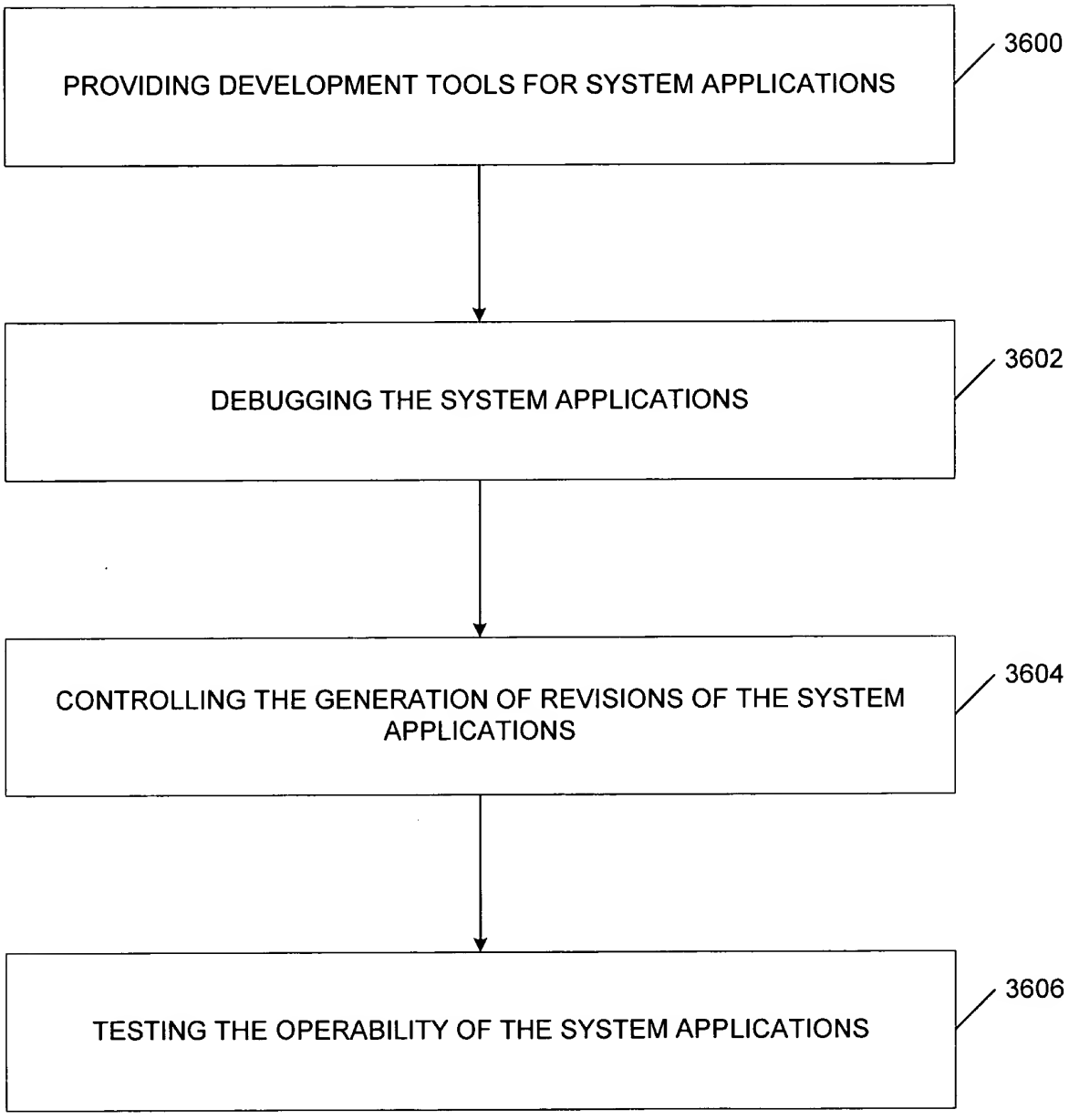
PROVIDING DEVELOPMENT TOOLS FOR SYSTEM APPLICATIONS
3600
DEBUGGING THE SYSTEM APPLICATIONS
3602
CONTROLLING THE GENERATION OF REVISIONS OF THE SYSTEM APPLICATIONS
3604
TESTING THE OPERABILITY OF THE SYSTEM APPLICATIONS
3606
1432

Figure 36